No. 22592-A

IN THE

UNITED STATES COURT OF APPEALS

FOR THE NINTH CIRCUIT

GEO. J. MEYER MANUFACTURING CO., a Wisconsin corporation, Appellant, vs. SAN MARINO ELECTRONIC CORPORATION, a California corporation, Appellee.	)	No. 22592-A

Appeal from the United States District Court

for the Central District of California

APPELLEE'S BRIEF

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I. INTRODUCTION

This case involves the alleged infringement of U. S. Patnt No. 3,133,640 owned by the defendant-appellant.

The statement of facts which follows are presented in everal parts. In parts A, B and C there is set forth a stateent of facts. Following this there is a section D entitled acts Which Are Controverted by the plaintiff-appellee (or which ere presented by the appellant but not supported by the record). mphasis will be placed in presenting evidence which supports the rial court's Findings of Fact and Conclusions of Law relating o the issues of validity and infringement since the appellant's rief does not discuss the evidence on both sides where it disgrees with the Court's findings.

II. STATEMENT OF THE CASE

A. Facts Relating To How Present Suit Came Into Being

The plaintiff, San Marino Electronic Corporation is a mall California corporation having its principal place of usiness in El Segundo, California. Plaintiff's corporation was rganized in late 1962 to manufacture and sell an empty bottle nspection machine which was first placed on the market in arly 1963. The first of such machines was designated as odel 303. Just prior to the trial in January, 1967, plaintiff egan the manufacture and sale of another empty bottle inspection achine designated as the Slimlite. During the trial it was tipulated that the optical and electrical design in the Slimite machine was sufficiently similar to the Model 303 machine and

that the question of infringement of both machines could be determined solely by reference to the Model 303 machine. To date these are the only products of the plaintiff-appellee. In May, 1964, the patent in suit issued to defendant-appellant and in August, 1964, appellant placed plaintiff and its then principal customer Crown Cork & Seal Company on Notice of Infringement of the patent. In October, 1964, plaintiff-appellee brought the present suit for declaratory relief and the appellant counterclaimed for patent infringement.

In September, 1967 pursuant to a request by the trial court the parties agreed to separate plaintiff's claim of patent misuse for trial from the issues of infringement and validity for purposes of trial.

The patent misuse trial occurred in September, 1967 and resulted in a finding on this issue for the defendant.

In January, 1967 trial was held on the issue of infringement and validity of the patent in suit. The patent in suit includes 24 claims. Prior to the trial the parties agreed to withdraw Claims 1-6 from issue. During the trial counsel for defendant stated that a formal disclaimer of Claim 16 of the patent in suit had been filed with the United States Patent Office. Thus, only Claims 7-15 and 17-24 were litigated. The trial court found each of Claims 7-15 and 17-24 not infringed and invalid by its order of judgment of October 10, 1967 (R. 1938 through R. 1958).

Defendant filed a notice of appeal on November 6, 1967 from the Court's finding of non-infringement and invalidity and

o granting to plaintiff of its costs and the infringement and alidity portion of the trial. In November, 1967 plaintiff ross appealed from the trial court's failure to find patent isuse, the award of costs to the defendant as to the misuse ortion of the trial, and the failure of the Court to award laintiff its attorney's fees.

The appellant George J. Meyer Manufacturing Company is a isconsin corporation having its principal place of business in ilwaukee, Wisconsin, but it also has other places of business n other cities of the United States and abroad as well as in os Angeles county. Defendant was organized in 1904 and does an nnual business of approximately $35,000,000.00. Appellant anufactures an entire line of bottle handling equipment used by oft drink, beer and milk bottling companies. Among the equip-ent manufactured and sold by the appellant are washing machines, ncasing machines, bottle sorting machines, labeling machines nd empty bottle inspection machines. Appellant's empty bottle nspection machine designated Mark IV has been marked by it nce late 1959. Prior to that time, the appellant did not have n empty bottle inspection machine in its line. In 1959, a nall company called Industrial Dynamics Corporation was manu-acturing and selling the Mark IV machine which it had itself eveloped. In September, 1959, appellant had transferred to it ghts under the only two patent applications of Industrial namics Corporation relating to empty bottle inspection machines. ne of those patent applications was the parent patent appli-tion upon which a continuation patent application Serial No.

0753 was based (Ex. 41). This continuation patent application hich was filed in October, 1960 resulted in the issuance of he patent in suit in May, 1964.

Commencing in early 1958 Industrial Dynamics Corporation esignated the Mark II machine. This machine was made sub-tantially in accordance with the teachings of the patent in uit. (Tr. 475) In 1959 prior to the transfer of the two patent pplications by Industrial Dynamics Corporation to the defendant, ndustrial Dynamics Corporation filed a patent application which esulted in the issuance of patent No. 3,081,666. This patent s the one which describes the Mark IV machine.

The alleged invention of the patent in suit is for an lectro-optical system together with associated electronic ircuitry for use in commercial bottling plants to inspect mpty bottles, to determine the presence of dirt in such ottles. Machines for the very same purpose had been manu-actured and used in various bottling plants long prior to 1958.

B. Operation Of The 3,133,640 Machine

The patent in suit discloses an empty bottle inspection achine which automatically will remove a bottle found to con-ain dirt from a bottle conveyor line. The machine is con-tructed so as to be initially set to the bottle reject position; hus, the bottle being inspected will automatically be rejected nless a signal is produced indicating that the bottle is clean. his aspect of the design of the machine described in the patent n suit is claimed in Claims 1-6 and were not at issue at the rial and are not at issue in this appeal.

The means for determining the presence of dirt in the bottle eing inspected as described by the patent in suit includes an rrangement of a light bulb directly below the bottle to be nspected. Above the bottle is disposed a rotating cylinder aving a lens and a reticle. The reticle consists of a disc aving alternate radial and opaque and transparent areas of qual size and configuration so that 50% of the disc is rendered paque and 50% of the disc is transparent to the light reaching ne reticle. A motor and appropriate drive means are provided o rotate the cylinder above the bottle at a predetermined otational speed. Above the reticle there is placed a photocell o receive the light passing from the light bulb through the ottle and reticle in that order. The photocell receives ariations in the light signal as the reticle rotates to indi- ate the presence of a dirt particle in the bottle. These ariations are processed by the electronic circuitry to accept r reject the bottle. The patent specifically states (column , lines 19-22):

> "The general concept of inspecting bottles by passing a light therethrough and having a photocell, the output of which is indicative of the state of cleanliness of the bottle, is well known and has been used extensively."

d at column 1, lines 27-28 the patent specifically states at it merely constitutes,

> ". . .an improved inspection system over those presently available."

At the trial, plaintiff contended that its patent was a sic patent, likening it to the Wright brothers' invention of

the airplane (Tr. 5).

The '640 patent involves two basic parts, the optical system and the electronic system. The optical system consists of the following, a light bulb over which there is placed a rotatable cylinder. Between these two elements, and in line therewith, is what may be designated as the bottle inspection zone. The bottle is positioned between the light bulb and the rotatable cylinder. The axis of rotation of the rotatable cylinder is in line with that of the bottle. The rotatable cylinder has a reticle fixed therein near its upper end. The reticle is a disc divided into fourteen equally spaced pie shaped segments alternatively opaque and transparent to light. A motor and drive pulley is employed to rotate the cylinder which carries the reticle. Directly above the reticle there is fixed a photocell to receive the light passing from the bulb through the bottle being inspected thence through the reticle.

The electronic system consists of a D.C. amplifier which receives a signal directly from the output of the photocell. The output signal from the D.C. amplifier is connected both to the input of a first flip-flop circuit and to a gating circuit. The first flip-flop circuit is in turn connected to a reject control tube. This reject control tube operates a solenoid which mechanically removes a bottle containing dirt from the line of bottles being inspected. The output signal from the gating circuit is connected to a second amplifier which is an A.C. amplifier turned to a particular frequency whose output is in turn fed to a detector circuit, the output signal from

the detector circuit is connected to the input of a second flip-flop circuit. The output from the second flip-flop circuit is connected to the input of the reject control tube as is the output from the first flip-flop circuit.

The rotatable cylinder is rotated by a motor which in turn causes a rotation of the reticle housed within the cylinder. The total amount of light falling on the photocell in the absence of a particle of dirt is equal to half the amount of light passing through the bottom of the bottle and the lens. This is so because half the area of the reticle is opaque to light and half transparent. This is true whether the reticle is rotating or is stationary. The electronic system may be viewed as including two sub-systems, a D.C. sub-system and an A.C. sub-system. If the total amount of light reaching the photocell is less than a predetermined level indicated by the D.C. acceptance level line, the D.C. system will retain the presumption and, therefore, the bottle will be rejected. This D.C. rejection may be caused by a "large object" in the bottle, a cap being situated on the crown of the bottle, a very dark bottle, a faulty bulb or the like.

The A.C. system is necessary to detect the presence of a "small dirt particle", even though the D.C. signal level is not appreciably reduced by the presence of the small particle. If a small particle of dirt is present in the bottom of the bottle the amount of light reaching the photocell will vary repetitively as the image of the foreign particle will intermittently coincide with the opaque and transparent sectors of the reticle. Less

light will pass through the reticle to the photocell repetitively as the particle alternatively appears and disappears in the transparent and opaque sectors. These repetitive signals are fed into the tuned amplifier (after first having gone through the D.C. amplifier and gating circuitry) and results in an A.C. signal which causes rejection of the bottle. The A.C. signal is produced as explained hereinbefore by the repetitve signal from a small particle being scanned by the multi-spoke reticle thus producing an A.C. signal of a particular frequency. (See column 4, line 56-60 of the patent.) The particular frequency which is given by way of an example on the patent is 1,099 cycles per second (rather than 1,199 as is mistakably set forth in the Brief of the appellant, page 60). The 1,099 cycles per second is the product of 157 revolutions per second times the 7 pair of spokes. The output signal of 1,099 cycles per second is detected by a detection circuit whose output, if it is above a predetermined amplitude, will switch the second flip-flop from its normal acceptance position state to its reject state. The second flip-flop output in turn will then be applied to reject tube 47 causing it to fire (i.e., to become conducting) when the bottle leaves the inspection zone. The firing of tube 47 operates a solenoid which (in a manner not described in the patent) causes the bottle to be rejected. The output signal from the solenoid serves to reset both the first and second flip-flops to the accept stable state. If no A.C. signal of the predetermined frequency is detected, the second flip-flop circuit remains in its accept state and the bottle will pass unless

the first flip-flop is in its reject state at the time the bottle is in the inspection zone.

Perturbations caused by irregularities in the system will cause a photocell to receive alternating current signals of a frequency different from that determined by the number of spokes in the reticle times the speed of rotation of the reticle. Since the tuned amplifier rejects or greatly attenuates all but the predetermined frequency to which the amplifier is tuned, the tuned amplifier will only produce an output signal indicating the presence of a particle of dirt and will not produce a signal caused by the bottle irregularities. If a dirt particle is centered in the bottle no rejection will occur as there will not be a signal produced because there will not be a variation in the amount of light as the reticle rotates.

The above operation of the '640 patent was explained by John Ryde in his testimony in connection with Exhibits 61 and 65 commencing at Tr. 1416, line 24 through Tr. 1467, line 9. Plaintiff's Exhibits 70 through 79 also help explain the operation of the '640 patent as contrasted to the appellee's system and were all testified to by Mr. John Ryde, one of the expert witnesses called by appellee.

C. Operation Of The Appellee's Machines

A vertically disposed bottle is directed over a light source. In this position (called the inspection zone) the bottle is disposed beneath the optical portion of an inspection head. The inspection head consists of a centrally located focusing lens which is aligned with the axis passing through

the bottle at the instant in time when the bottle is centrally located in the inspection zone. The bottle is moved through the inspection zone during inspection which results in detecting the presence of a dirt particle from anywhere between the center of the bottle up to the edge or periphery of the bottle. Directly above the lens there is located a rotating mirrored line on the surface of a rotating aluminum cylinder whose axis of rotation is oblique to the axis of the lens and the bottle. The axis of rotation of the mirrored line intersects the axis of the bottle and lies outside of the bottle. The mirrored line is concave and functions as a lens so that an image of the lens aperture and hence the vicinity of the neck of the bottle is focused upon the photocell.

The mirrored line is connected to a motor for rotating the same at 12,000 rpm (200 rps). The mirrored line is a radial stripe 1/32" wide by 15/16" long. The optical axis of the mirror and the rotational axis of the mirror are displaced one from the other by a distance equal to the radius of the photocell approximately 1/8". The offset of the axis of rotation introduces a nutation along with the fact that the relative area of the photocell and the image of the neck of the bottle which are different, enables the stationary photocell to scan the neck region of the bottle, the remainder of the bottle is scanned by the rotating mirrored line.

Electrical circuitry is provided to receive an output signal from the photocell and from switch means for determining the fact that a bottle is in the inspection zone. In the

bsence of a signal generated by the photocell either due to
dirt particle in the bottom of the bottle or in the vicinity
f the neck of the bottle, the bottle will be passed through the
nspection zone and be deemed a clean bottle. If the bottle is
ound to contain an object of foreign matter there will be pro-
uced an electrical signal which will energize the relay which
ctivates the solenoid device which directs the bottle off the
onveyor line.

The plaintiff's machines' electrical circuitry operate in
he following manner: The electrical signal supplied to the
ircuitry by the photocell is at each instant proportional to
he light striking the photocell. All the light striking the
hotocell arrives via the reflecting stripe on the mirror and
he mirror is rotating. The instantaneous light striking the
hotocell is governed by the transmission characteristics of a
orresponding radial stripe passing through the bottom of the
ottle. Further, since the light must also pass through the
eck region of the bottle, the portion of the neck region of
he bottle that is instantaneously being viewed by the photocell
s also determined by the rotation of the mirrored line. Thus,
he instantaneous amount of light reaching the photocell can be
odified by the presence of foreign matter in the neck of the
ottle. When foreign matter is present in the bottle either
n the bottom or in the vicinity of the neck region, there will
esult an <u>abrupt change in level of light</u> received by the photo-
ell at the instant the reflecting stripe first crosses the image
f the foreign particle and at the instant the reflecting stripe

completes its passage over the particle. The manner in which the bottom and neck scan occurs as mentioned hereinabove was explained by Mr. Husome in his direct testimony at Tr. 1059 to 1088, especially in connection with Exhibits 61, 62 and 64.

A change in the level of the amount of light received by the photocell can also occur because of non-uniform transmission of light by various portions of the bottom of the bottle due to varying thickness of the bottle, uneven distribution of the die in the bottle glass, nomenclature and stippling molded in the bottom of the bottle and other glass imperfections. These imperfections are rather blurred and ill-defined as compared to changes brought about by discrete foreign particles and, hence, result in more gradual light level changes (as opposed to abrupt light level changes caused by dirt particles). The electrical signal received from the photocell will, therefore, contain information about the transmission characteristics of the glass and any contents in the bottle either in the bottom or the neck thereof. The average level of signal from the photocell would indicate the average transmission characteristics of the bottle bottom and neck regions. Any perturbations in this average signal indicate non-uniformity in the bottle as seen by the photocell. Irregularities in the signal from the photocell caused by true foreign particles are characterized by particularly abrupt changes in the average light level. <u>It is only abrupt changes which effect the SME circuit devices</u>. The circuit performing this function may be characterized as a slope detector. (See Griest's testimony at Tr. 2169).

D. Additional Facts In Contravention Of Those Presented By Appellant In Its Brief

1. At page 6 in sub-paragraph 1 of its Brief appellant indicates that the Meyer Mark IV machine incorporates the features of the patent in suit. What this fails to state is that the Meyer Mark IV machine incorporates certain features of the 3,081,666 patent, one which was in suit but which was subsequently dropped from the suit, and also the invention by Owens Illinois for the bottle handling mechanism, the latter being a most important factor in what was subsequently truly a commercially successful machine. It was this bottle handling mechanism which is not described or claimed in the patent which mechanism was designed and patented by the Owens Illinois Co. This is supported in the record at Tr. 1057, line 19 through Tr. 1058, line 5.

2. In sub-paragraph 2 on page 6 of its Brief, appellant states that the Barry-Wehmiller machine employed the same concepts as the '640 patent. This alleged fact is apparently presented by the appellant in an effort to lend some credence to its concept proving infringement by the appellee of the patent in suit through a "derivation" theory. It would seem that whether or not the Barry-Wehmiller machine employed the "same concept" as does the '640 patent, is irrelevant to any consideration of the infringement of the plaintiff's machines. Clearly, the place to try the possible question of infringement of the patent in suit by the Barry-Wehmiller machine, would be

n a suit between those parties and not the present litigants. dditionally, an examination of Ex. AT and Ex. AU taken together ith Calhoun's testimony (Tr. 627-630) shows clearly that no eticle (regardless of the number of spokes or their shape) is mployed in the Barry-Wehmiller machines.

3. In the first full paragraph on page 8, appellant n its Brief states that an Ex. AA was a physical embodiment f the patent in suit. Both Dr. Griest and Mr. Ryde testified t the trial that such was not the case. See Griest's testimony t Tr. 2111-2119. In particular, attention is directed to 2118, ine 16 through 2119, line 2 which reads:

> "THE COURT: Do you agree with any part of what he said, I take it to be.
>
> THE WITNESS: No, I do not agree with it. As I say, I am not -- I don't know that I am aware of what the demonstration equipment was supposed to demonstrate.
> I do not agree as I would understand substantially the term 'substantially.'
> I would not agree that either circuit represents substantially the circuit it was stated to represent.
>
> THE COURT: All right."

ttention is also directed to Mr. Ryde's testimony on cross- xamination as it bears upon this point beginning at Tr. 1695, ine 9 to Tr. 1696, line 12 and also his direct testimony ommencing at line 15 of Tr. 1613 through line 20 of Tr. 1623 nd especially Tr. 1614, lines 20-25 wherein Ryde testified:

> "BY MR. HORN:
> Q. Would you agree with the statement that the upper circuit, the circuit which is indicated as being 'LC Tuned' is made substantially in accordance with the teachings of the circuit shown in the '640 patent?
>
> A. No, I would not agree."

4. Beginning at line 9, page 9, of the appellant's Brief, it states:

> "The examination of the bottle continues through the period of time during which the center of the bottle is being conveyed. . ." (emphasis added)

and it goes on to state in the next sentence:

> "It is one of the features of this type of scanning device that the bottle does not have to be exactly centered at all times. . ."

This sort of statement which appears elsewhere in the Brief of the appellant, as well as other points discussed in this section of appellee's Brief, finds absolutely no support in the patent. Whether the machine which the Meyer Company has manufactured and sold, designated the Mark IV, in fact incorporates the type of mechanism referred to at page 9 of the appellant's Brief, should be determined from the patent only. Even if reference is made to the testimony in this regard by Mr. Calhoun, it would seem that the following excerpt would be of interest (lines 14-19 of the Tr. 476) wherein he volunteered:

> "A. Yes, basically, because what this allowed us to do, your Honor, was to examine the continuous field without moving the bottle. As you can see, you do not have to move the bottle, and this is basically or almost identical to the principle used in the Mark IV bottle inspector that is now being marketed." (emphasis added)

5. Commencing with the second full paragraph on page 10 of its Brief (and thenceforth many times elsewhere) appellant seeks to draw an equivalence between the term alternating

current electrical signal (A.C.) and pulse merely by using the terms in the alternative. The basis for such an equivalence is not found in the patent. Again, the touchstone for the determination of the scope of the claims of the patent in suit should be its claims as interpreted in light of the specification, drawing, and file history and not based upon hindsight in view of the operation of plaintiff's machines. The equivalence of A.C. to pulse (while testified to by the appellant's witness, Mr. Calhoun) is certainly not something to be accepted as a fact. The non-equivalence of these two types of electrical signals especially as they relate to the patent in suit were testified to at length by both of plaintiff's experts, namely Mr. John Ryde and Dr. Griest. (See Tr. 1504, line 1- Tr. 1507, line 25 and Ex. 92 together with Mr. Ryde's testimony relating thereto, namely Tr. 1651-1660; Also see Dr. Griest's testimony on this point, Tr. 2098, line 14 to Tr. 2100, line 3).

Mr. Williams, one of the co-inventors of the '640 patent, whose testimony at the trial was introduced by deposition, testified at Tr. 1592, line 22 to Tr. 1593, line 19; that the plaintiff's machines pulse slope detection operation is different electronically from the '640 patent.

6. At line 1 on page 13 of appellant's Brief mention is made of "spatial filtering" as being an important aspect somehow of its invention. Here again, "spatial filtering" is not mentioned in the patent either in the specification, the claims, the drawings, or the file history. This "fact" should

herefore not be considered relevant to any consideration before
he Court.

7. At line 10, page 19 of its Brief, appellant makes
ention of another term which does not find any support in the
pecification, drawings, claims, or file history of the patent
suit. This term is "frequency discrimination." Thus, this
pposed fact again is one which is irrelevant to any issue
this case.

8. In the first full paragraph on page 21 of appellant's
rief mention is made of the fact that it took several months
provide a system that would operate successfully. The impli-
tion seems to be here that this difficulty centered about the
anning system. In this connection contrary evidence was pre-
nted by the plaintiff (see the testimony of Mr. Calhoun,
. 476-478, wherein he testified the difficulty centered around
he mechanical handling system, an aspect which is not described
claimed in the patent and, therefore, had nothing to do with
e difficulties in connection with the supposed invention
described and claimed in the patent; also see Wyman's testi-
ny at Tr. 2349.) Further, in this connection John Ryde
stified at Tr. 1693 that the amplifier system, in particular the
ning aspect of it, was very simple to design and was routine.

9. At page 22 of its Brief in the paragraph entitled,
. Other Techniques and Alternative Devices Considered and
sted by the Inventors" appellant makes reference to testimony
erein it is claimed that the inventor had tried reticles having
ly a single transparent segment and a single opaque segment

prior to filing of their patent application. Williams testified that a single spoke had never been tried (his deposition at page 91, Tr. 71) and such is not mentioned in the patent; and as a matter of evidence, John Ryde testified at Tr. 1538 that such is inconsistent with the teaching of the patent and the Court so found. Here again, the question should be what is in the patent and not what it is that the appellant would like to have read into the patent in view of the design of the plaintiff's machine.

10. Toward the bottom of the only full paragraph on page 25 of appellant's Brief, appellant states that the San Marino machines still have a dead spot in the center. While there is no doubt that there was testimony to this effect by the one witness presented by the appellant (Mr. Calhoun), contrary evidence was presented by the plaintiff-appellee to the effect that it does not have a dead spot in the center. Such testimony was presented by appellee in the testimony of Mr. Husome at Tr. 1159-1160.

11. In the last paragraph on page 28 of its Brief, appellant again refers to the supposed equivalence between its Ex. AA and the machine of the patent in suit as well as the machine of the plaintiff. Not only is such inconsistent with the evidence and, therefore, not a fact, (see testimony of Mr. Ryde and Dr. Griest mentioned in subparagraph 3 above) but, it is submitted that they were so different that plaintiff's witness could have not guessed as to why such was presented by the appellant at the trial. (Tr. 2118)

II. QUESTIONS PRESENTED

A. Whether There Is Sufficient Evidence To Support The Finding Of The Trial Court That Claims 7-15 And 17-24, Inclusive Of The Patent In Suit Are Not Infringed By Appellee's Machines.

B. Whether There Is Sufficient Support In The Record To Affirm The Court's Determination That Claims 7-15 And 17-24, Inclusive Are Invalid As Obvious Under 35 U.S.C. 103.

V. ARGUMENT

A. Infringement

1. Introduction

Infringement evidence adduced in the trial in support the Court's findings of non-infringement as well as other ses for supporting the Court's finding of non-infringement ll be presented. As an aid to the Court, this presentation ll include two tables. The first table is labeled "Support The Record For The Court's Findings Of Fact Of Non-Infringe-nt." The second table will be labeled "Additional Bases For firming The Court's Findings Of Non-Infringement." The Court, its findings of fact filed October 9, 1967, set forth in nding 22 (R. 1947) various bases for its determination of n-infringement of certain of the claims at issue, namely claims 9, 18, 20, 21, 22, 23 and 24. The Court stated in this re-rd in its findings that it limited its detail discussion to ose claims predicated upon defendant's counsel's stated llingness to base its case upon certain claims (Conclusion of w 23, R. 1954).

Appellee advanced other bases for non-infringement during the trial and contends that evidence in the record supports the Court's finding of non-infringement with respect to all of the claims at issue, but only those claims which were discussed in detail by the Court are included in both tables.

Findings on the question of infringement of patents constitute findings of fact and unless they are clearly erroneous should not be disturbed. Kim Bros. vs. Hagler, 276 F.2d 259 (9th Circuit 1960).

Patent infringement is a "question of fact" and much weight should be attached in determining that issue, to the findings and opinion of the trial judge who observed the manner and demeanor of the witnesses and heard them testify. Super-Mold Corp. of California vs. Bacon, 130 F.2d 860 (9th Circuit 1942).

The claims of a patent are the measure of the scope of the invention and it is against the wording of the claims by which a Court should determine if infringement exists. Nelson vs. Batson, 322 F.2d 132 (9th Circuit 1963).

While the above is clearly an axiomatic expression of the patent law, the appellant in its Brief makes little or no mention of the wording of the claims which it discusses. Instead, an attempt is made by appellant in its Brief to approach the question of infringement in general terms. For example, at page 55 of appellant's Brief the title of the argument section therein discussed reads,

"6. The District Court Erroneously found that Plaintiff's Machines did not Infringe the Intent or the Language Expressed in the Claims"

The Brief continues on this point 6 from page 55 through page 71 without once quoting from a substantial portion of a single one of the claims at issue. The grounds for a finding of non-infringement for each of the claims discussed in detail in finding 22 are here presented, reference being made to the "wording of the claims" under consideration. The reason for the use of the two tables is that the wording of the claims, when referring to the same element, which forms a portion of the combination of elements claimed, is not consistent from claim to claim.

2. Support For Certain Of The Court's Findings Prefatory To Its Specific Findings Of Non-Infringement Of Claims In Issue

The Court in its findings of fact, made certain findings of fact 5a, 5b, 5c, 5d, 6, 7 and 8 (R. 1939 through R. 1941). Support for each of these findings will be pointed out with reference to at least certain portions of the transcript and the record in this case. For the Court's convenience all of the Findings of Fact and Conclusions of Law relative to the questions of infringement and validity are to be found in appendix A.

a. Finding of Fact 5a - Support for this is to be found in Mr. Ryde's testimony at pages 1472 and Ex. 73. Also, Ex. 92 and Mr. Ryde's testimony at Tr. 1655 through 1660. Additionally, Mr. Ryde specifically testified at Tr. 1674, that the RC networks in the '640 patent are used as couplers and not

s differentiators. This was testified to at Tr. 1474 through ine 7 at Tr. 1477. Further, Mr. Ryde went on to further explain n detail his reasoning for concluding as he did in this onnection. This commences at line 8 of Tr. 1477 where he estified in connection with Ex. 79 through Tr. 1490 where in ddition to the other exhibits mentioned, there are introduced xs. 78 and 80 which relate to the finding under consideration. r. Griest likewise testified to the following effect, Tr. 2110 ines 17-21:

> "Well, in order to therefore function in the 303 machine this circuit must be a poor coupling circuit or in other words a good differentiating circuit. So that this does not work, does not couple AC currents in the customary manner."

b. Finding of Fact 5b finds support in the record y Mr. Ryde's testimony in connection with Ex. 96 which is given t Tr. 1673 through Tr. 1677 at line 15.

c. Finding of Fact 5c - Support is found in the ecord at Tr. 990 in Calhoun's testimony that the center of otation and axis of rotation are synonymous and also see yde's testimony above referred to in connection with support or finding 5b.

d. Finding of Fact 5d - Support for this is found n the record in Ex. 54, Calhoun's cross examination at Tr. 922 nd Ryde's testimony at Tr. 1538, lines 2 through 8. Further upport for this is found beginning at Tr. 1538 et. seq. of the ranscript.

e. Finding of Fact 6 - Support for this fact 6 s found in Ryde's testimony at Tr. 1423 et. seq. and Dr. Griest's

testimony at Tr. 2123, line 18 to line 22 of Tr. 2127 and 2169-2170 as well as Ex. 92 and Ex. 65.

f. Finding of Fact 7 - Support for finding of fact 7 is found in Mr. Ryde's testimony and exhibits testified in connection therewith which were discussed in connection with finding 5d.

g. Finding of Fact 8 - Support for finding 8 is found in Ex. 92 and Mr. Ryde's testimony at Tr. 1431 and Dr. Griest's testimony at Tr. 2123 regarding the first portion of this finding (i.e., A.C. signal of a particular frequency) and Mr. Ryde's testimony at Tr. 1548 regarding the second portion of the finding (i.e., that the reticle must have more than one opaque and transparent segment).

3. Support In The Record For The Court's Findings Of Fact Of Non-Infringement

a. Table Of Elements Of Claims

Element (1) - (See element C of Exhibit 97)

Claim 7:

"optical means for sequentially and cyclically coupling the light from different areas of the bottle to said photocell means where the different areas include the center of the bottle and progressive portions of the periphery of the bottle " (emphasis added)

Claim 9:

"rotatable means disposed relative to the container and the first and second means for directing the energy in succession from the first means to the second means along progressive segments of the bottom of the bottle where the progressive segments include the center of the bottom of the bottle and progressive portions of the periphery of the bottle" (emphasis added)

Claim 18:

"light responsive means including a light coupler rotatable on a center within the periphery of the container for sequentially scanning different areas of the illuminated field where the areas are substantially greater than the size of the particles to be detected and include at each instant the center and a portion of the periphery of the container" (emphasis added)

Claim 20:

"rotatable means having a center of rotation within the periphery of the container for providing a radiant energy through progressive segments of the container in succession where the progressive segments include the center and progressive portions of the periphery of the container" (emphasis added)

Claim 21:

"said rotatable optical member including means for sequentially coupling information bearing light from different areas of the bottle to said photoelectric scan where the area from which light is provided at any instant is substantially larger than the cross-sectional area of any particle of dirt to be detected and includes the center of the bottle and a portion of the periphery of the bottle." (emphasis added)

Claim 24:

"said disc having alternate radial opaque and translucent areas each including the center of the disc and a portion of the periphery, said disc being positioned relative to the bottle to pass to the photoelectric means the light passing at each instant through at least one complete translucent area and through a portion of the bottle between at least the center and a portion of the periphery" (emphasis added)

Element (2) - (See element D of Exhibit 97)

Claim 7:

"said photoelectric scanning means being constructed and disposed to render an alternating current signal output when receiving light from a bottle having small particles of dirt thereon and being constructed and disposed to

render a substantially direct current signal output when receiving light from a bottle having no small particles of dirt thereon, and inspection circuit means coupled to said photocell means and constructed to reject a bottle when the output is an alternating signal and further constructed to reject a bottle when the electrical signal output from said photocell means is below a predetermined level, said inspection circuit means being further constructed to pass a bottle when the electrical signal output from said photocell means is both above the predetermined level and a direct current signal but adapted to reject a bottle if the output is an alternating current signal" (emphasis added)

Claim 9:

"means responsive to the energy passing to the second means from the bottle and the rotatable means for indicating the presence of foreign particles in the container in accordance with the occurrence of alternating characteristics in such energy at progressive instants of time." (emphasis added)

Claim 18:

"threshold responsive means electrically coupled to said photocell for detecting particular alternating components in the electrical signal produced by said photocell" (emphasis added)

Claim 20:

"converting means responsive to the modulated radiant energy from the medium for providing a direct current electrical signal indicative of the average transmission characteristics of the medium and of any particles in the medium and also an alternating current electrical signal for each particle in the medium at a particular frequency and at a magnitude related to the size of the particle." (emphasis added)

Claim 22:

"inspection circuit means coupled to said photocell means and constructed to reject a bottle when the output is an alternating signal" (emphasis added)

Claim 23:

"said inspection circuit means including amplifier means tuned to a specific frequency range, said range covering

the frequency of the alternating current signal output rendered by said photocell means when re-receiving light from a bottle having small particles of dirt therein; said inspection circuit means being further constructed to reject a bottle if the photocell output is an alternating current signal having a frequency within said specific tuned frequency range." (emphasis added)

Element (3) - (See element F of Exhibit 97)

Claim 9:

"where the center of rotation of the rotatable means is disposed within the area defined by the bottom of the container" (emphasis added)

Claim 20:

"rotatable means having a center of rotation within the periphery of the container for providing radiant energy through progressive segments of the container in succession" (emphasis added)

Claim 21:

"a rotatable optical member having a center of rotation at a position within the periphery of the bottle," (emphasis added)

Claim 24:

"means for rotatably supporting said disc on a center located within the periphery of the bottle being inspected (emphasis added)

Element (4) - (See element G of Exhibit 97)

Claim 18:

"where the areas are substantially greater than the size of the particles to be detected" (emphasis added)

Claim 21:

"where the area from which light is provided at any instant is substantially larger than the cross-sectional area of any particle of dirt to be detected" (emphasis added)

lement (5) - (See element E of Exhibit 97)

Claim 18:

"threshold responsive means electrically coupled to said photocell for detecting particular alternating components in the electrical signal produced by said photocell" (emphasis added)

Claim 20:

"an alternating current electrical signal for each particle in the medium at a particular frequency and at a magnitude related to the size of the particle." (emphasis added)

lement (6) - (See element A of Exhibit 97)

Claim 24:

"said disc having alternate radial opaque and translucent areas" (emphasis added)

b. Evidence of Non-Infringement

lement (1) - (See element C of Exhibit 97)

With reference to this element the table below shows the elationship between and the places where these elements are iscussed by the Court and found in the claims under considera-ion.

Claim Number	Sub-Paragraph of Court's Finding of Fact	Page in Record
7	(a)	1947
9	(a)	1949
18	(b)	1950
20	(b)	1951
21	(c)	1952
24	(a)	1953

This element in each of the claims under consideration does not find its counterpart in the SME machines. In order for the SME machines to achieve center detection, of necessity, the bottle is permitted to move through the inspection zone during the inspection interval. Ex. 94 and Ex. 95 were testified to by one of plaintiff's experts, John Ryde; they show that the bottle moves during the inspection interval (Tr. 1667 through 1673). In addition, Mr. Husome testified that in the SME machines, beginning at Tr. 1059 through Tr. 1060 that:

> "The bottle moves approximately 3/8ths of an inch during the inspection interval.

Thus, the area being inspected by the SME machines, which are coincident with that portion of the mirrored line of the rotating mirror, do not include the center of the bottle and progressive portions of the periphery of the bottle. Instead, during a portion of the look time the periphery of the bottle and something less than the center is being viewed, subsequently the periphery is not being viewed and something beyond the center is being viewed when the center is being viewed, etc. Thus, at

ne same point in time the center and a portion of the peri-
nery are not inspected by the SME machine except during that
nfinitely small instant in time when the bottle is exactly
entered in the inspection zone.

It is asserted in appellant's Brief at pages 66 and 67
nat Ryde testified in effect in favor of appellant at Tr.
761-1777 on the presence or absence of this element. A
areful reading of these pages of the transcript, it is
ubmitted, refutes this assertion.

Again appellant at page 67 of its Brief refers in the
iddle of the top paragraph to Griest's testimony at Tr. 2224
nplying support for the entire paragraph. Actually, no such
upport is to be found in Griest's testimony as is implied, and
s pointed out above Ryde testified to the contrary on the
oint regarding the absence of this element in the alleged
nfringing machines.

lement (2) - (See element D of Exhibit 97)

With reference to this element the table below shows the
elationship between and the places where these elements are
iscussed by the Court and found in the claims under considera-
ion.

Claim Number	Sub-Paragraph of Court's Finding of Fact	Page in Record
7	(b) and (c)	1947
9	(c)	1950
18	(c)	1950 and 1951
20	(c)	1951 and 1952
22	(a)	1952
23	(b)	1952 and 1953

This element in each of the claims under consideration does not find its counterpart in the SME machines. Unlike the requirement of this element of the claims under consideration whereby a signal of a particular frequency is required to produce an electrical reject signal, the SME machines only reject a bottle upon the determination that a pulse of a particular slope is produced by the presence of a small dirt particle when there is a coincidence of an image of that particle with the passing thereby of the radial mirrored line on the rotating mirror. This pulse which is fed to the amplifier in the SME machines will only produce a reject signal if the slope of such pulse is of a sufficient predetermined value and the SME machines are not concerned with the magnitude of such pulse. It is not the presence or absence of this pulse, but the presence or absence of a particular slope or abruptness of the pulse which determines that a reject signal should be generated. This is entirely different from the design required by the element under consideration of the '640 patent. See John Ryde's testimony

beginning at Tr. 1423 et. seq. wherein in connection with Ex. 65 he explains the operation of the electrical circuit in the '640 patent and in his testimony beginning at Tr. 1504 wherein he states as follows in answer to a question put to him:

> "Q Now, does the '640 patent, including its file history, in your opinion teach the detection of a small foreign particle in the bottom of a bottle by the abruptness of a pulse or the rate of change of a pulse?
>
> A No."

This is clear evidence in the record that the '640 system does not teach nor do the claims contemplate detection of a small dirt particle by the determination of the abruptness of a slope or a pulse. Further, it was testified to by Mr. Husome that appellee's machines detect the presence of a foreign particle by the abruptness of a slope of a pulse (Tr. 1093 et. seq.) and beginning at Tr. 1106 Mr. Husome, in reference to Ex. 65 in explaining the operation of the electrical circuit of the plaintiff's machines, stated:

> "A Yes, I was going to the pink block, which is one of the more important functional blocks in the machine.
>
> The signal that comes from the differentiating amplifier now, representing the rate of change at which the particle was scanned, the rate of change at which the particle and the scanning line intercepted one another -- "

In addition, Mr. Ryde testified that rejecting a bottle because of the presence of a particle of dirt is determined by sensing the slope of a pulse in the plaintiff's machines, this

n connection with Ex. 93 (Tr. 1660 through Tr. 1667) and articularly at Tr. 1663 where Mr. Ryde testified as follows:

> "Now we have already demonstrated in the 303 amplifier in operation that we do not have repetitive cycles, that on the first pulse we reject the bottle if it is to be rejected at all, and this is the difference with regard to this particular point in the claim language."

Thus it is clear that it is entirely different from the esign required by this element of the '640 patent. John Ryde n testifying in connection with Ex. 97 at Tr. 1687 testified s follows concerning the distinction between the claim language f this element in the claim (he was discussing claim 20 in articular) thus lending further support to the proposition hat this element does not find its counterpart in the SME achines:

> "Q I would like to read to you a portion of Claim 20, commencing at line 57:
>
> 'converting means responsive to the modulated radiant energy from the medium for providing a direct current electrical signal indicative of the average transmission characteristics of the medium and of any particles in the medium and also an alternating current electrical signal for each particle in the medium at a particular frequency and at a magnitude related to the size of the particle'
>
> Does that find its counterpart in the SME machine?
>
> A No, for the same reason I just mentioned. Here we have an alternating current electrical signal for each particle in the medium at a particular frequency. But here we have an addition, 'at a magnitude related to the size of the particle'. The SME machine does not depend on the magnitude of the signal but rather the rate of change."

Inasmuch as appellant in its Brief has attempted to quate this element of the claim relating to the detection of n alternating current with the plaintiff's machines electronic lope detection circuit and in this respect relies primarily n the testimony of one witness, Fred Calhoun, it would seem ppropriate to consider the following facts. Mr. Calhoun has definite interest in the determination of the validity and nfringement of the patent at issue. Not only is he one of ne named inventors, but he also was the only expert witness nd for all practical purposes the only witness the defendant resented in the trial. Further, Mr. Calhoun admitted at the rial (Tr. 260 of misuse trial) that he was personally receiving t the time of testimony between $20,000 to $40,000 per year n royalties from the defendant under the agreement which transerred the patent in suit. In appellant's Brief there are everal instances wherein an attempt is made to equate alternating urrent signal and pulses by using those words in the alternative. See page 10 beginning in the second paragraph through the first omplete paragraph on page 13 of appellant's Brief, for example). n the point of the equivalence between alternating current as s taught and claimed by the patent in suit and the detection f a slope of a pulse which is the manner of operation of the laintiff's machines much turned upon the manner of operation f the LC tuned circuit comprising capacitor 80 and coil 82

n the '640 patent (see Figure 4 of plaintiff's Ex. 73). Mr. alhoun testified beginning at line 15, Tr. 819 that it was mpossible to employ an LC tuned circuit alone for the purpose f achieving the desired goal of selecting a particular lternating current frequency indicative of a foreign particle. n cross examination Mr. Calhoun backed off from having said hat this was impossible to accomplish by an LC circuit to its eing "difficult" and perhaps "inconvenient." Based upon the estimony of Mr. Ryde beginning at page Tr. 1690 of the ranscript through Tr. 1693 that he sharply disagreed with Mr. alhoun even that it was inconvenient; and on so many other oints as to suggest that Mr. Calhoun's prejudice in this case as a significant factor in determining what he said. On the ther hand, neither Dr. Griest, nor Mr. Ryde had any financial r other interest in the case. (See Tr. 1920 as to Ryde).

Another important aspect of the testimony regarding the elationship operation of the circuit of the patent in suit to hat of the plaintiff's machines should be considered. Mr. alhoun testified during his direct testimony regarding Ex. 73 hat certain RC circuits labeled A, B, C, D and E act as ifferentiator circuits in the '640 machines and that such ifferentiator circuits serve to "frequency discriminate" ogether with the LC circuit. This was in an attempt to draw n analogy to the several differentiating RC circuits in the laintiff's machines to show that the patent covers the same. t is interesting to note that of all of the RC circuits estified to by Mr. Calhoun, namely A, B, C, D and E, that none

them were considered important enough to have been described
the specification other than to designate them as coupling
rcuits, in passing. (See the patent in suit at column 5,
ne 3 through 5):

> "The output of tube 68 is applied to the alternating-current amplifier, which includes tube 84 and 86, which are coupled in well-known fashion to amplify an alternating-current signal."

ne of the resistor-capacitor combinations labeled A, B, C, D
d E by Mr. Calhoun in his testimony in Ex. 73 even have
mbers on them in the patent drawing. Further, since a good
rtion of the appellant's case centers upon the sharp contrast
the testimony of the witnesses for the plaintiff and Mr.
lhoun, the only witness on this point for the defendant, it is
ggested that the trial court properly found for the plaintiff
this point and should not be overruled unless its finding
s clearly erroneous. Ryde testified commencing at Tr. 1467
ne 11 through Tr. 1477 line 7, that none of the RC circuits
B, C, D and E drawn in Ex. 73 serve as differentiating cir-
its. This is an exact contradiction to Calhoun's testimony
garding Ex. 73 on this point. Within this above excerpt
stimony of Mr. Ryde a clear statement to the above effect is
oted herebelow (Tr. 1474 line 17 through 23):

> "Q Do you agree with the proposition these RC networks A, B, C, D, E and F --A, B, C, D, E, -- act as differentiating circuits in the '640 system, in accordance with its teachings?
>
> A No, I do not. I don't believe an engineer would ever use them as differentiating circuits within the teachings of the patent."

In addition, Dr. Griest, another eminently qualified xpert, testified to the same effect at Tr. 2123 line 22 rough Tr. 2124 line 4 which reads as follows:

> "Q Does the circuit shown in the Calhoun patent and described in the specification disclose or suggest differentiation or slope detection?
>
> A No.
>
> Q Are the RC -- in your opinion are the RC circuits shown in the Calhoun patent employed for coupling or for differentiation?
>
> A They are employed primarily for coupling."

lso in Griest's testimony on this point, see Tr. 2124 line 22 rough Tr. 2125 line 21.

In appellant's Brief still another attack is tangentially de on this finding of the Court. In order to contend that the C. tuned LC circuit of the '640 patent is equivalent to an C network including several RC circuits (whose values are chosen cause differentiation, i.e., slope detection to occur) appel- nt states at page 59 of its Brief: "Plaintiff uses an 'RC' rcuit in its machine for frequency selection instead of an LC' circuit." This sentence in the Brief thus assumes that ne is equivalent to the other in the context under consideration. ne evidence strongly points the other way. Beginning at Tr. 22, line 19 through Tr. 1529, line 11, in particular when ked if he agreed with Mr. Calhoun's prior testimony that by rying the value of an RC tuned circuit he could make it take actly like an LC tuned circuit, Mr. Ryde stated at line 17-21 Tr. 1528:

> "A <u>No, that is not possible.</u> It is not

possible to take an RC circuit such as shown in the upper right-hand corner of Exhibit O and have it have the same frequency characteristics as an LC circuit shown in Exhibit 76." (emphasis added)

Still further to this point, appellant in its Brief still page 59 went on in the next sentence to state:

"In other words, an inductance 'L' in the amplifier of the '640 patent is changed to a resistance 'R' in the amplifier of the San Marino machine."

t only does the above testimony of Ryde squarely refute this con-tion, but a mere glance at the circuit of the SME machine age ii of appendix in appellant's Brief) as compared to . 73 (the circuit diagram of the '640 patent) shows how ry different they are, quite beyond the fact that one is a cuum tube and the other a transistor circuit. Also see Tr. 83-1689 where Ryde testifies with reference to the claim nguage giving further his reasons for his opinion that the plifier in the '640 patent and the appellee's machines are fferent.

ement (3) - (See element F of Exhibit 97)

With reference to this element the table which follows ows the relationship between and the places where these ements are discussed by the Court and found in the claims der consideration.

Claim Number	Sub-Paragraph of Court's Finding of Fact	Page in Record
9	(b)	1949 and 1950
20	(a)	1951
21	(a)	1952
24	(a)	1953

This element in each of the claims under consideration oes not find its counterpart in the SME machines. Much has een made by the appellant in its Brief that its supposed nvention combination includes, among other things as a alient feature thereof, "a centered optical system". This eature appears to find itself in the following claims of those nder consideration, namely 9, 20, 21 and 24 (the wording in ne claims differ from "centered optical system"). The claims all for the center of rotation of the rotatable means as being isposed in the areas defined by the bottom of the container. nile in the claims under consideration the term "center of otation" rather than "axis of rotation" is employed (other laims in the patent employ the term axis rather than center nen referring to rotation, see for example claim 13) the erm 'center of rotation' is used to modify the term rotatable. oviously the rotatable means in the '640 system (See Ex. 61) s the lens and reticle, neither of which are contained within ne area defined by the bottom of the container, but instead are isposed thereabove. To make sense of this term in the claim nerefor it is assumed that what was meant to be said is that

he axis of rotation rather than the center of rotation is with-
n the area defined by the bottom of the container. Support
or this view is found in Ex. 96; there reference is made
o specific sections of the file history wherein the applicant
hrough its attorney in advancing the allowability, of what
ecame claim 20 in the patent, that the axis of rotation was
ithin the periphery of the bottle being tested. John Ryde
n his testimony commencing at line 1, Tr. 1674 through line 15,
R. 1677 explained why the element under consideration in the
laims of the patent should be construed as meaning axis of
otation of the reticle.

lement (4) - (See element G of Exhibit 97)

With reference to this element the table below shows the
elationship between and the places where these elements are
iscussed by the Court and found in the claims under
onsideration.

Claim Number	Sub-Paragraph of Court's Finding of Fact	Page in Record
18	(a)	1950
21	(b)	1952

This element in each of the claims under consideration does
ot find its counterpart in the SME machines. The element under
onsideration states that the area scanned at any instant is
ubstantially greater than the size of the particle in the
ontainer. In fact, in the SME machines the area scanned is
etermined by the reflecting mirror line. In the SME machines

e size of the scanned area therefor is 1/32" (the width
the line) by 15/16" (the length of the line). This is
ual to .0293 square inches. This was testified to by Mr.
some (line 5 through 11 of Tr. 1071). The size of the smal-
st particle which can be detected by the SME machine is 1/8"
diameter which is an area of 0.0123 square inches.

Thus, the area being scanned at any instant is not neces-
rily substantially greater than the size of the smallest
rticle to be scanned. In a typical case, the particle is of
e order of 0.0625 square inches which is greater than the size
the area to be scanned rather than less which is called for
this element of the '640 claims. John Ryde testified in
nnection with plaintiff's Ex. 97 beginning at Tr. 1679:

> "A This chart is intended to show in a concise fashion the various elements of claims that limit the '640 patent and where they are not found in the SME 303 machine."

ement (5) - (See element E of Exhibit 97)

With reference to this element the table below shows the
lationship between and the places where these elements are
scussed by the Court and found in the claims under
nsideration.

Claim Number	Sub-Paragraph of Court's Finding of Fact	Page in Record
18	(d)	1951
20	(c)	1951

This element in each of the claims under consideration oes not find its counterpart in the SME machines. Ex. 97 nd Ryde's testimony in connection therewith regarding lternating current level detection at page Tr. 1679 et. seq. s evidence of the non-inclusion of element (e) (which is called or by claims 18 and 20 of the patent in suit) from the plain- iff's machines. In addition, Ryde testified that the tuned ircuit is level sensitive (See Tr. 1459 line 1 through Tr. 460 line 19. Also see Ryde's testimony Tr. 1423 commencing t line 16, where the witness is testifying with reference to x. 65, through page Tr. 1454 line 23). Also Ex. 77 was xplained by Mr. Ryde for purposes to draw an analogy between he LC tuned circuit of the patent in suit and a weight and pring (plaintiff's Ex. 77) to show that it is necessary to, ithin the concept of the '640 patent and as called for by the laims at issue, to build up to a certain magnitude or level a ignal of a predetermined frequency in order to detect the resence of a small particle by the '640 machine. In an exchange etween the Court and the witness commencing at Tr. 1450 line 1 t is clear that the witness' testimony supports the Court's find- ng that the '640 patent requires the build up to a predetermined evel or magnitude of the A.C. signal at a particular frequency.

lement (6) - (See element A of Exhibit 97)

With reference to this element the table below shows the elationship between and the places where this element is

iscussed by the Court and found in the claim under onsideration.

Claim Number	Sub-Paragraph of Court's Finding of Fact	Page in Record
24	(b)	1953

This element in the claim under consideration does not ind its counterpart in the SME machines. The SME machines o not include a scanning means (disc or reticle) having lternate opaque and translucent areas. That is, plaintiff's achines, if the mirrored line be considered equivalent to a ransparent area, still do not have more than one such area nd, therefore, they do not have areas. Support for this finding ay be found in plaintiff's Ex. 97 which was testified to by yde at Tr. 1679 through Tr. 1681. Additionally, Calhoun's own atent No. 3,283,898, Ex. 54 in evidence, states, commencing t line 39, column 1 through line 50 of column 1:

> "--though generally satisfactory, has a number of limitations with respect to the sensitivity of the photoelectric scanning means. First, the sensitivity varies across the scanning field, being lowest at the center of the rotating reticle, and second the overall sensitivity of the scanning means is low because the particle blocks only a small part of the light from the bottle through the reticle. One half of the available light is transmitted through the reticle because a number of transparent sectors are required to a signal suitalbe for processing." (emphasis added)

yde testified beginning at Tr. 1431 line 2 through the testimony n this point at Tr. 1548 line 16 that the '640 patent required or its teachings and as called for by the element under onsideration that the reticle have at least two alternate

paque and translucent areas. The Court aptly summed up Ryde's estimomy between the above pages of the transcript as follows t lines 14 through 16 of Tr. 1548:

"THE COURT: So your point is you want to have at least two dark and at least two like spokes.

THE WITNESS: This is correct."

4. Additional Bases For Affirming The Court's Finding of Non-Infringement

a. Table Of Elements Of Claims

Element (1) - (See element A of Exhibit 97)

Claim 7:

This element does not specifically appear in the wording of the claim.

Claim 9:

This element does not specifically appear in the wording of the claim.

Element (2) - (See element B of Exhibit 97)

Claim 7:

"optical means for sequentially and cyclically coupling the light from different areas of the bottle to said photocell means where the different areas include the center of the bottle and progressive portions of the periphery of the bottle" (emphasis added)

Claim 22:

"optical means for sequentially and cyclically coupling the light from different areas of the bottle to said photocell means," (emphasis added)

Claim 23:

"optical means for sequentially and cyclically coupling the light from different areas of the bottle to said photocell means, " (emphasis added)

lement (3) - (See element E of Exhibit 97)

Claim 7:

"inspection circuit means coupled to said photocell means and constructed to reject a bottle when the output is an alternating signal and further constructed to reject a bottle when the electrical signal output from said photocell means is below a predetermined level, said inspection circuit means being further constructed to pass a bottle when the electrical signal output from said photocell means is both above the predetermined level and a direct current signal but adapted to reject a bottle if the output is an alternating current signal" (emphasis added)

Claim 22:

"further constructed to reject a bottle when the electrical signal output from said photocell means is below a predetermined level; said inspection circuit means being further constructed to pass a bottle when the electrical signal output from said photocell means is both above the predetermined level and a direct current signal but adapted to reject a bottle if the output is an alternating current signal even if the average output is above the predetermined level." (emphasis added)

ement (4) - (See element F of Exhibit 97)

Claim 18:

"light responsive means including a light coupler rotatable on a center within the periphery of the container"(emphasis added)

b. Evidence of Non-Infringement

ement (1) - (See element A of Exhibit 97)

Before undertaking a review of Claim 7 it would be well t note that this claim of the patent was originally designated a Claim 24 in the continuation application (Ex. 41). It was

rejected in the first office action by the Examiner and was allowed in the second office action after amendment to the claim was made at page 367 of the file history.

In the discussion of Claims 23 to 26 of the continuation application (therefor including Claim 24 which ultimately became Claim 7 of the patent) the attorney for Meyer stated in the file history at page 374:

> "Claim 23 to 26 inclusive, are allowable over the references for substantially the same reasons as discussed above with respect to claims 15 and 21 inclusive."

In discussing Claims 15-21 at pages 373 and 374 of the file history, the attorney for the Meyer company states that:

> "None of the references discloses a system including scanning means having a member with alternate opaque and translucent areas--".

his latter limitation does not find itself in Claim 24, but must e viewed as in effect being present by application of the octrine of "file wrapper estoppel". (See the trial court's onclusion of Law 19, R. 1957). It should further be pointed ut that at page 374 of the file history the attorney stated,

> "None of the references disclose a system in which the progressive areas are scanned where the progressive areas include the center and progressive portions of the periphery of the bottle, applicant obtains increased and simplified structures relative to the system discussed in the references including the system discussed by Stoate."

Element (2) - (See element B of Exhibit 97)

In attempting to persuade the Court that this element of the claims does not find its counterpart in the SME machines, plaintiff first had to make a determination as to the meaning of this element ("sequentially and cyclically. . .") as there is no reference to it either in the specification of the patent in suit, nor in the file history. In Ex. 93 appellee presented what it believed to be a reasonable interpretation of the ambiguous language; as thus construed it shows that it does not cover the operation of the SME machines. To the extent that the term can be understood, it appears to require that the reticle rotates at least 5/7 of a revolution (with a 7 spoke reticle). Even if it be conceded that the mirrored line of the SME machines is equivalent to the '640 machine after one revolution of the mirrored line, the subsequent scanning information is irrelevant. Again, this is pointed out in Ex. 93 and Ryde's testimony, Tr. 1660 to Tr. 1665. Indeed, the Court after having had it pointed out that this element had no counterpart in the specification stated at Tr. 1665 lines 15 through 17 as follows:

> ". . .and I am going to serve notice that I am going to ask somebody for your interpretation of what sequentially and cyclically means."

It is submitted by appellee that that challenge was never met by the appellant and that the Court ought to have found the absence of this element in the SME machines called for by each of the claims which includes it; therefore, it is another basis for showing avoidance of infringement with respect to the claims of

the patent in suit.

Element (3) - (See element E of Exhibit 97)

The trial court made no specific finding of the presence or absence of this element in Claims 7 and 22. However, this element clearly appears in these two claims as may be readily seen from the claims themselves and by reference to Ex. 97. This element does not find its counterpart in the SME machines and the reasons therefor are discussed in appellee's Brief at pages 40 and 41 in connection with the argument regarding element 5 of the table entitled "Support In The Record For The Court's Finding Of Non-Infringement."

Element (4) - (See element F of Exhibit 97)

The trial court made no specific finding of the presence or absence of this element in Claim 18. However, this element clearly appears in the claim as may be readily seen from the claim itself and by reference to Ex. 97. This element does not find its counterpart in the SME machines and the reasons therefor are discussed in appellee's Brief at pages 37-39 in connection with the argument regarding element 3 of the table entitled "Support In The Record For The Court's Finding Of Non-Infringement."

5. Scope To Be Afforded To The Claims

The appellant has argued that the trial court should have given broader coverage to the claims in suit. Appellant

contends that "single spoke reticles" (appellant's Brief page 55) and "RC circuits" (appellant's Brief page 59) were used by the inventors of the '640 patent prior to filing their application at the Patent Office. It should be stressed that all the evidence introduced on these points at the trial come from Calhoun, one of the patentees and a financially interested party in the present litigation.

The Court, however, acting fairly and with prudence analyzed the defendant-appellant's contentions and came to the conclusion that the language of the patent and file history did not support a broader invention than that disclosed and claimed. Ryde testified as an uninterested witness as to why single spoke reticles (Tr. 1548) and differentiating RC networks (Tr. 1467) were not within the contemplation of the '640 patent. In fact Calhoun himself in his patent No. 3,283,898 at column 1, lines 47-50 (Ex. 54) indicates that his machine would not operate satisfactorily with a single spoke reticle. As far as the equivalency of RC and LC circuits, Ryde (Tr. 1528) and Griest (Tr. 2272) clearly testified that differentiating RC circuits and tuned LC circuits are not interchangeable in the Calhoun and San Marino machines. In fact Ryde (Tr. 1528) testified that the Calhoun device would not operate with an RC circuit. The appellant cites The Neff Instrument Corp. v. Cohu Electronics, Inc., 298 F.2d 82 (9th Circuit 1961) for authority that LC & RC circuits are equivalent. The Neff case made no such finding; it stated at page 89: 'LC and RC filters are both capable of doing the same job." (emphasis added)The above-mentioned testimony by Griest & Ryde suppor

the position that LC and RC circuits are not equivalent. For example, one cannot replace an LC tuned circuit, as used in the '640 patent, with the RC differentiating circuits used in the appellee's machines. (Tr. 1528, 2272) The present case does not deal with filters and, therefore, the Neff case is not applicable. The patent discloses selection of an A.C. signal of a particular frequency by a tuned circuit (LC). (Ex. 10 column 4 lines 54-60 and Ex. 92) The claims must be interprted in light of the specification.

A patent and its scope must be limited to some discernible standard. A patent is a legal document, in the form of a contract, which contains claims that define the patentee's monopoly. The public is entitled to know what area of technology is within the patent monopoly grant and what area is available to them to advance the state of the act. The Courts have long held that the claims of a patent define the scope of the patent grant. (Universal Oil Products v. Globe Oil & Refining Co., 322 U.S. 471)

In Stallman v. Casey Bearing Company, Inc., 244 F. 2d 905, 908 (9th Circuit 1955) cert. denied 355 U.S. 864 the Court stated: "It is the claim, of course, which measures the grant to the patentee."

In Del Francia v. Stanthony Corp., 278 F.2d 745, 745 (9th Circuit 1960) the Court said:

> "The general rules of patent claims construction are well settled. A patent is thus construed as a contract, with the intent of the parties uppermost so as to give effect to their legitimate expectations ****** The claims are a measure of the monopoly granted to the inventory, --- and they can never be broader than the invention disclosed to the public.

Finally, the specification and drawings must be looked to in order to properly grasp the invention or explain any ambiguity in the claims. The specification may not be used to enlarge any claim, but can be used to limit any claim." (emphais added)

At 749, the Court continues:

". . .if the doctrine of equivalents is to apply, it is well to bear in mind the classic definition which requires the accused device to perform substantially the same function in substantially the same way to obtain the same result as that claimed for the patented items."

The trial court correctly interpreted the claims of the 640 patent in finding that a single spoke reticle and RC network or use in differentiating circuits were not within the scope f the claims and were not described in the specification. urthermore, the doctrine of equivalents did not apply (Conlusion of Law 21 R. 1958) because as discussed above, the ingle spoke reticle and RC networks used by the San Marino achines did not function and could not function in the same way o obtain the same results as taught by the '640 patent.

Also, Griest testified that the functions of the San Marino achines and the '640 machine were "substantially dissimilar" and hat "They accomplish their purpose by dissimilar means." (Tr. 099-2100) Therefore, any attempt to equate the overall peration of appellee's machine with that taught by the '640 atent under the doctrine of equivalents is unfounded.

The appellant was able to broaden the claims of the '640 atent by means of filing a continuation application. The claims resented in the continuation attempted to cover machines then n the market and not within the scope of the claims originally

resented. The appellee had contended that such claims were Johnny Come Lately" claims and should have rendered the patent nvalid. However, in any event to allow appellant to make his laims even broader by reading on structure not disclosed anywhere in the patent or file history would be inequitable to the ublic interest.

B. Validity

1. Introduction

The District Court correctly found that the claims n issue were invalid as not meeting the statutory requirements f 35 U.S.C. 103.

In order for a patent to be valid, the invention ust be new, useful and unobvious. (35 U.S.C. 101, 102 and 103). he Court determined that the Calhoun patent, U. S. Patent No. ,133,640, contained claims which were invalid as being obvious nder 35 U.S.C. 103. The claims the Court found to be invalid ere Claims 7-15 inclusive and 17-24 inclusive which were all he claims at issue before the District Court.

35 U.S.C. 103 reads as follows:

> "A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made."

The following discussion presents some of the pport in the record for maintaining the Court's finding of invalidity as well as the case law that has developed in determining the relevant prior art, obviousness, and the weight t be accorded to the trial court's determination of invalidity.

2. Analogous Art Question

The Court determined that "The nature of the art e are here concerned with is the detection of foreign objects n a field of view by electro-optical techniques, rather than eing limited to the bottle inspection field." (Finding of Fact , R. 1941).

The Court also found that electro-optical systems for he detection of objects in the sky, detection of material oving on a conveyor, detection of the presence of objects oving on the ground, and detection of objects in a container, 11 are systems which reside in an analogous art, and such ystems employ similar elements in a similar relationship for similar purpose. (See Finding of Fact 10; R. 1941-1942).

These Findings of Fact by the trial court are upported by the weight of evidence and testimony before the ourt. It is quite clear that technically trained people are ot limited to the use of scientific principles to accomplish single end use (e.g., bottle inspection). Therefore, the ontention by the Appellant (Appellant's Brief, page 37) that he only field of pertinent art is the bottle handling field is roneous and not supported by the weight of authority in this Circuit or any other Circuit.

For example, in Stearns vs. Tinker and Rasor, 220 F.2d 49 (9th Circuit, 1955) at 56-7, the Court said,

"The rule laid down by many of the authorities is that whether arts or uses are analogous depends upon the similarity of their elements and purposes. It is said that if the elements and purposes in one art are related and similar to those in another art and because and by reason of that relation and similarity make an appeal to the mind of a person having mechanical skill and knowledge of the purposes of the other art then such arts must be said to be analogous; and if the converse is true, they are not analogous." (Emphasis added)

In Aerotec Industries vs. Pacific Scientific Co., 81 F.2d 795 (9th Circuit, 1967), the Court stated after eviewing the similarity of the devices involved,

"We cannot believe that if Appellee's skilled engineers, knowing nothing at all about trolley catchers or the trolley catchers patents, had devised, for holding a man in his seat in an airplane, the precise type of reel and mechanism described, say, in Ham, they could get a valid patent on it. Yet that is what Appellee's argument amounts to. As the Supreme Court said in Graham vs. John Deere Co., 383 U.S. 1 at 36:

'It is also irrelevant that no one apparently chose to avail himself of knowledge stored in the Patent Office and already available by the simple expedient of conducting a patent search -- a prudent and nowadays common preliminary to well organized research.'"

The appellant contends that the only field of pertinent art is the bottle inspection art (Appellant's Brief, pgs. 42-45). This type of reasoning does not agree with the manner in which technical problems are solved. Scientific principles lend themselves

exploitation by skilled men in any art and there can be no artificial classification of relevant art by reference to a particular type of end use.

The Patent Office realizing that men skilled in the various arts solve problems in different technical areas by the utilization of the same scientific principles classifies patents in areas that utilize the same essential functions.

In the Index to Classification printed by the U. S. Department of Commerce (Patent Office)at page I, dated July, 1967, the following is stated,

> "As all patentable law or instruments are created for an ulterior utility, the characteristics selected as the basis of classification is that of essential functions or effect. Arts or instruments having like functions, producing like products, or achieving like effects are brought together; but the functions or effects that serve as a basis of classification must be proximate or essential, not remote or accidental." (emphasis added)

In the Appellant's brief at page 40, it is stated,

> "Plaintiff did not introduce any evidence through plaintiff's experts Husome, Ryde and Griest or through plaintiff's cross-examination of Calhoun, to show that the two fields are analogous. In the complete absence of any such evidence and their obvious remoteness from the business standpoint, Appellant submits that the District Court erred in considering the missile and star tracking technology as relevant prior art to a bottle inspection patent." (emphasis added)

ppellant's statement is contrary to the record. Ryde at
r. 1382-1391, and Griest at Tr. 2333-2334, 2150-2151 both
estified that the problems to be solved with respect to bottle
nspection make use of basic principles that are catagorized
s electro-optical techniques. At Tr. 2334, Dr. Griset testified
s to what a group of engineers at Highes Aircraft Co. thought
bout the similarity of the technologies involved. The following
s an excerpt:

> "The subject of our conversation was Mr. Williams leaving the company, and we were joking about the fact to us it was completely obvious. If you could find an airplane in the sky you could certainly find a piece of dirt in a bottle by the same technology. The subject of the joke was not the difficulty, the fact it was not obvious to us, but it was, rather, that it was sort of like breaking a peanut with a sledge hammer."

Tr. 2150-2151 Griest testified as follows:

> "Q. (Roston) Now, would you expect an engineer of ordinary skill in the electro optical scanning and detection art in 1957 to be able to adapt the system of Biberman to inspect bottles if given the problem?
>
> A. (Griest) I would. I have tried to use language which indicated the way I think most engineers would think about this. A circuit engineer, at least an engineer interested in physics rather than the particular application would judge this to be a device--
>
> THE COURT: Indicating the Biberman device.
>
> THE WITNESS: (Griest) --the Biberman device--to be a way of responding to any

> anomaly in the field of view, and I don't think it would matter much whether the anomaly was an airplane in the sky or a spot in the bottom of a milk bottle if it were in the field of view of the device, and then it would seem to me that an engineer who did understand this would think if it were suggested to him, that he look at the bottle problem--I think one of the things he might do after he read the prior art would be to say to himself, 'Why not put the Biberman device so it will look down the neck of the bottle and then make the corresponding changes which would adapt it to this requirement?'"

As pointed out above in the statement from the dex to Classification, the arts are classified by like nctions or like effects. The trial court correctly found sed on the evidence introduced that the problem to be lved was not unique to "bottle inspection" but was rather part of the more general technical area concerned with the tection of objects in a field of view by electro-optical chniques. The above testimony of Ryde and Griest and other idence which will be discussed below indicate that the Court perly defined the scope of the relevant prior art.

The File History (Ex. 41) of the present patent at p. 455 dicates the areas searched by the Patent Examiner, who may be sidered as a man skilled in the art. The fields examined the Examiner are listed below:

Class 209	Classifying, separating and assorting solids
Class 250	Radiant energy
Class 88	Optics
Class 340	Electrical communications

t is also interesting to note, for example, that the Gullikson atent (Ex. 120) and Biberman Patent (Ex. 49) are lassified in the same class, namely Class 88 Optics, yet the ullikson patent deals with bottle inspection and the Biberman ith the location of an airplane in the sky.

The Patent Examiner in performing his search (see ages 361 and 402 of Ex. 41) cited references having the ollowing titles:

"Photo Electric System" - U. S. Patent No. 2,016,036 (Ex. 43B);

"Apparatus For Deteching Foreign Bodies in Transparent Vessels" - U. S. Patent No. 2,947,877 (Ex. 43C);

Photoelectric Inspection Device", U. S. Patent No. 3,395,482 (Ex. 43D);

"Photoelectric Sizing Mechanism" - U. S. Patent No. 3,415,174 (Ex. 43E);

"Electronic Inspection Apparatus" - U. S. Patent No. 2,798,605 (Ex. 43F);

"Radiant Energy Sensing System" - U. S. Patent No. 2,820,906 (Ex. 43G);

"Target Scanning System" - U. S. Patent No. 2,931,912 (Ex. 43 H

"Diffraction-Type Interrupter" - U. S. Patent No. 2,956,170 (Ex. 43I); and,

"Goniometer With Image Analysis By Frequency Modulator" - U. S. Patent No. 2,967,247 (Ex. 43J).

As can be seen from the above list of titles, the pertinent art area is much broader than appellant contends. In fact, all the patents deal in general terms with scientific function

and effects and not usually a single type of application.

Further, the Examiner contended throughout the prosecution of the '640 patent (Ex. 41, pages 402-403) that all the art cited was pertinent and the claims presented had to be construed in view of the art cited in order to advance the prosecution of the case at the Patent Office.

It is also interesting to note the actual areas from which the art cited by the Examiner was found. In the "U. S. Patent Office Classification Definitions" the areas in which pertinent art was found were defined as follows: Class 209, subclass 111 (Ex. 41, page 361):

> "Methods and means under subclass 72 for automatically assorting articles according to color. Generally such methods and means involve the effect of light reflected from or transmitted through the respective articles upon selenium cells.
> SEARCH CLASS -
> 250, Radiant Energy, subclass 42+, especially subclass 50+, for methods and apparatus for subjecting objects to the effects of radiant energy rays and subclass 200+ for photocell electric circuits and photocell apparatus, particularly subclass 226 for photocells which respond to the color of light objects and subclass 223 to photocells which sense objects traveling on a conveyer or chute." (Emphasis added)

Class 250 subclass 233 (Ex. 41, page 361 of File History):

> "Subject matter under subclass 232 in which the means for intermittently interrupting the optical path is a rotary element." (Emphasis added)
> (Note: Subclass 232 is defined as "subject matter under 229 having means for intermittently interrupting the optical path between the light source and photocell in a repetitious cyclic sequence.")

Class 88 (File History pages 402 and 455) is defined as follows:

> "This class includes all instruments (and their accessories) for aiding or testing vision and for projecting images upon surfaces internal to the instrument; also, astronomical and surveying instruments in which vision is employed for accurate alignment and other devices or methods involving reflection, refraction or chromatic effect which are not so closely related to other arts that they should be classified elsewhere."

From the above definitions it would be obvious to one skilled in the art to consult patents such as Biberman (Ex, 49) and Jones (Ex. 112), for example, to solve problems in the field of optical detection of objects. Biberman is classified in Class 88 (Optics) and Jones in Class 250 (Radiant Energy).

It is obvious from the Examiner's contention, the art cited and the areas searched that the Patent Office considered the relevant prior to be the detection of objects by electro-optical techniques (Ex. 41, pages 402-405). No mention is made in the definitions of the areas searched of either "bottle inspection" or "missile and star tracking". All the definitions are concerned with means and methods for accomplishing a given function or accomplishing a given effect.

Calhoun's notebook (Ex. I, pages 41 and 42) shows a notation made by Calhoun himself suggesting that the basic electro-optical system used in the Falcon missile system would be apropos as a solution to the problems presented by the bottle inspection machine he was then working on (Tr. 765). Further, all the inventor Calhoun, Williams and Wyman, came from Hughes Aircraft Co., Guided Missile Division, and each was involved in some way with the area

of missile tracking and related areas. (Tr. 99, Misuse Tr. 171)

The inventors investigated scanning systems from many fields other than bottle inspection (Tr. 232, 253) which strongly support the propositionsthat technological problems are solved by making use of general scientific principles and men skilled in the art do not confine themselves to the narrow limits of a single industry.

Attention is also directed to Exs. 55, 56 and 57 where in Ex. 55 George Meyer (president of the Defendant-Appellant) wrote to Calhoun questioning the possibility of the anticipation of Calhoun's patent by an article presented in the IRE Journal (Ex. 56) dealing with "Infrared Search System Design Consideration Calhoun answered Mr. Meyer's letter in Exhibit 57 in which the discussion deals with "scanning systems", "optical scanners" and "infrared techniques". In Ex. 57 it becomes quite clear that Calhoun considered the technical areas concerned with the '640 patent to be "scanning systems", "optical scanners" and "infrared techniques" and nowhere is there any discussion that the infrared search system described in the article (Ex. 56) could not be applied to the bottle inspection field. In fact, the question of anticipation by Mr. Meyer well indicates that the use of infrared search systems were certainly related to the system described in the '640 patent for detecting particles in a bottle. As far as the record shows, Mr. Meyer was not a man of extraordinary skill in th art of missile and star tracking or even in infrared techniques, but rather he would be considered as a man with just ordinary skil in the art.

Therefore, contrary to the Appellant's assertion that here was not any evidence to show that the two fields are nalogous, the testimony of Ryde and Griest, the File History f the application of the '640 patent, the contention of the atent Examiner, the correspondence between Meyer and Calhoun, nd the IRE Journal article on infrared search systems all ndicate that the relevant field of art to be considered is that f the detection of objects in a field of view by electro-ptical techniques and the Conclusions of Law 5 and 6 (R. 1954-955) of the Trial Court are clearly supported by testimony and ther evidence.

Although a great deal has been said with respect to he question of "analogous art," it should be clearly understood hat even within the narrow field of "bottle inspection" Stoate British patent 517,229) and the RCA machine (Schell U. S. Patent o. 2,439,490 and Weathers U. S. Patent No. 2,192,568) teach .l the elements contained in the '640 patent. See Exhibits 9, 122 and 107. Also, the U. S. Stoate Patent No. 2,100,227 i pertinent since it teaches the same basic concepts as the tent in suit and is directly related to the bottle inspection eld. Further, if the patent is construed in the manner advanced appellant, Claims 8, 12, 13, 19, 20 and 24 would be anticipated Stoate '229 alone under 35 U.S.C. 102 (b) which provides:

> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States,

3. The Patent In Issue Is A Combination Of Old Elements And Is, Therefore, Subject To The "Severe Test" Of Patentability

The Court found in Finding of Fact 16 (R. 1945) that the atent in suit is a combination patent and in Conclusions of Law , 9 and 10 (R. 1955-6) set forth the strict standard and scope o be given to combination patents which merely unite old elements ith no change in their respective functions.

In Bentley vs. Sunset House Distributing Corp., 359 F.2d 40 (9th Circuit, 1966), the Court stated,

> "In assessing the patentability of combination patent, we are to supply a 'severe test' whether 'the whole in some way exceeds the sum of its parts' to produce 'unusual or surprising consequences from the unification of the elements. . .' A & P Key Company v. Supermarket Equipment Co., 1950, 340 U.S. 147 at 152, 87 U.S.P.Q. 303, 305-306." (emphasis added)

In Jeddeloh Bros. Sweed Mills, Inc., et al vs. Oe Manufacturing Co., 375 F.2d 85 (9th Circuit, 1967), the Appellate Court reversed the holding of validity of the trial court and reviewed the Graham v. John Deere Co., 383 U.S. 1, ad acknowledged the emphasis placed by the Supreme Court on the nobviousness criterion of 35 U.S.C. 103. It stated,

> "The principles of patentability as summarized above, are to be applied with special strictness in determining the patentability of combination patents. In Great Atlantic and Pacific Tea Co. vs. Supermarket Equipment Corp., 340 U.S. 147, 151, 152; 87 U.S.P.Q. 303, 305, the Court. . .pointed out that the conjunction known elements must contribute something, and that only when the whole in some way exceeds the sum of its parts is the accumulation of old devices patentable."

n Santa Anita Mfg. Co. vs. Lugash, et al. 369 F.2d 964 (9th ircuit, 1967), the Court noted that the patent in question was or a combination of known elements and states the issue to be,

> "Under what circumstances is a combination of known elements patentable as an invention?"

he opinion then acknowledges 35 U.S.C. 103, and goes on to note hat as to "Combinations of old ideas, the courts have already tated the law." The Court then continued:

> "It is apparent from the record and findings that the trial court tested patentability by the requirements of 35 U.S.C. 103, the test of obviousness. . .Unquestionably these statutory requirements are prerequisite to the issuance of any patent." Graham vs. John Deere Co., 383 U.S. 1. But in the special case of combination patents, "The severe test" referred to in Bentley vs. Sunset House Distributing Co., supra must also be applied and satisfied before a combination patent can be recognized. . .it is obvious from the authorities cited above that the test of the new function must be met or the patent is invalid." (Emphasis added)

n M.O.S. Corp. v. John I. Haas Co., Inc., 375 F.2d 614 (9th Circuit, 1967), the Court stated,

> "Court should scrutinize combination patent claims with a care proportioned to the difficulty and improbability of finding invention in an assembly of old elements. The function of a patent is to add to the sum of useful knowledge. Patents cannot be sustained when, on the contrary, their effect is to subtract from former resources freely available to skilled artisans. A patent for a combination which only unites old elements with no change in their respective function, which as is presented here obviously withdraws what already is known into the field of monopoly and diminishes the resources available to skilled men. This patentee has added nothing

> tot the total stock of knowledge, but has merely brought together segments of prior art and claims them in congregation as a monopoly."

It is, therefore, clear that under the authorities ted above, that the court correctly determined the question validity. The Court applied the tests set forth by the preme Court and the tests espoused in the most recent cisions of the Ninth Circuit and found that the elements of e '640 patent were all old in the art and that the combination the old elements was invalid for lack of invention over the ior art. The elements combined did not produced any usual or surprising results. In applying the test for mbination patents, the Trial Court correctly stated:

> "A patent for a combination which only unites old elements with no change in their respective functions,. . .obviously withdraws what already is known into the field of its monopoly and diminishes the resources available to skillful men."
> Farr Co. vs. American Air Filter Co., Inc. 318 F.2d 500, 503 (Conclusion of Law 9, R. 1956).

The Court's conclusion is supported by solid evidence nd should be affirmed.

4. The Trial Court's Findings With Respect to Invalidity Should Be Given Great Weight

Whether validity is a question of law, or fact, in the n Circuit appears to be in doubt but in any event the Trial urt's findings are entitled to great weight. In Container rporation of America vs. M.C.S. Corporation, 250 F.2d 704 at 9 (9th Cir., 1957), the Court stated that validity was a question

of fact and stated:

> "In summary, this court has consistently held that the question of validity of a claim of a patent is one of fact. The trial judge's finding of no invention is entitled to great weight, and this court will respect such findings unless we find them 'clearly erroneous.'
>
> The findings of the trial judge are solidly supported by the evidence, and obviously are not 'clearly erroneous.' It is our clear conviction that the device patented 'relates to a combination of old elements, which combination could have been produced by any reasonably competent person skilled in the art.'"

In Stauffer vs. Slenderella System of California, Inc., 254 F.2d 127 (9th Circuit, 1957), 115 USPQ 347, the Court said:

> "The findings of a judge upon novelty, utility and invention are entitled to great weight when made after trial of these issues. This Court will respect such findings unless the record shows these to be 'clearly erroneous.'"

In Hensley Equipment vs. Esco, 375 F.2d 432 (9th Circuit, 1967), the Court considered obviousness a question of law and said:

> "The obviousness or nonobviousness of the subject matter of a patent presents a question of law. National Lead Products Company vs. Western Lead Products Company, 9th Cir., 291 F. 2d 447, 450-451, 130 U.S.P.Q. 4, 6. However, that legal question is to be determined against a factual background, with particular emphasis on three considerations, namely: the scope and content of the prior art, the differences between the prior art and the claims at issue and the level of ordinary skill in the art."

See also, Monroe Auto Equip. Co. vs. Superior Industries, Inc., 332 F.2d 473 (9th Circuit, 1964) Cert. denied, 379 U.S. 901.

In M.O.S. Corp. vs. John I. Haas Co., Inc., supra, the Court stated:

> "While it has often been said that patentability is a question of fact, it is also true that in patent cases, as in most others, the record in the particular case may be such that the question becomes one of law."

However, most authorities are in accord that the factual determinations found by a trial court with respect to the question of validity should be given great weight whether the question is one of law or one of fact (see Container Corporation of America vs. M.C.S. Corp., supra, and Stauffer vs. Slenderella Systems of California, Inc., supra.) The question of validity in cases involving conflicting testimony and complex scientific data require findings of fact which should not be set aside unless clearly erroneous," and due regard shall be given to the opportunity of the trial court to judge of the credibility and testimony of the witnesses."

As Mr. Justice Jackson stated in Graver Tank & Mfg. Co. v. Linde Air Products Co., 336 U.S. 271, 274-275 (1949):

> "To no type of case is this last clause more appropriately applicable than to the one before us, where the evidence is largely the testimony of experts as to which a trial court may be enlightened by scientific demonstrations. This trial occupied some three weeks, during which, as the record shows, the trial judge visited laboratories with counsel and experts to observe actual demonstrations of welding as taught by the patent and of the welding accused of infringing it, and of various stages of the prior art. He viewed motion pictures of various welding operations and tests and heard many experts and other witnesses. He

> He wrote a careful and succinct opinion and made findings covering all the factual issues.
>
> 'The rule requires that an appellate court make allowance for the advantages possessed by the trial court in appraising the significance of conflicting testimony and reverse only 'clearly erroneous' findings.'" (Emphasis added)

Therefore, the Trial Court's findings should be accorded great weight since it had an opportunity to hear all the testimony, see the various demonstrations and judge the credibility of the witnesses presented. Unless the Trial Court's findings are clearly erroneous they should be affirmed.

5. Miscellaneous Contentions of Appellant

At page 45 of the Appellant's brief, the Appellant relies on the so-called "commercial success" to further the argument that the '640 patent was valid. However, the law on commercial success is very clear, "Commercial success without invention does not make patentability". A & P vs. Supermarket Equipment Corp., 340 U.S. 147 at 153. See also, M.O.S. Corp. vs. John I. Haas Co., Inc., supra. Commercial success is only a secondary consideration in the determination of obviousness, Graham v. John Deere, supra.

Further, the record does not support that if there was any "commercial success" it was connected in any way with the features appellant contends were patentable in the '640 patent. There were factors other than the features described in the '640 patent which may have contributed to any "commercial success" attributable to appellant's machine.

Appellant's machines not only involve the '640 patent but also U. S. Patent No. 3,081,666 (Tr. 36). Where "commercial success" results from a combination of two or more patents, it cannot support the validity of either patent taken individually (Philco Corp. v. Admiral Corp., 199 F.Supp. 797,(D. Del., 1961)).

"Commercial success" of appellant's machines was due in great part to the utilization of a bottle handling means known as the "Vacuum Star Wheel". (Tr. 2349-2350) The vacuum star wheel was not covered by the '640 patent and in fact was used by appellant under a license from the Owens Illinois Company (Tr. 1057-1058) Also, much of the "commercial success" of appellant's machines is attributable to the large and effective marketing organization of appellant. (See Tr. 1017-1018)

Therefore, the connection of "commercial success" with the features appellant contends were patentable is not supported by the evidence and is not even a valid secondary consideration in the present case.

At pages 15 and 32 of appellant's brief it discusses the "basic concept" of the patent and "essence of the patent disclosure". In Nelson v. Batson, supra, the court faced with a combination patent stated:

> "Nelson asserts that the 'heart' of his invention is the enhanced maneuverability resulting from the relationship between a rotatable propulsion unit and a skeg located as stated in his claim, and that the location of the motor does not affect this relationship. Nelson contends that

> Batson should not be permitted to appropriate the 'heart' of Nelson's invention simply by altering another, unessential, element. 'We can only answer, 'that there is no legally recognizable or protected 'essential' element, 'gist' or 'heart' of the invention in a combination patent.'" (Emphasis added)

See also Aro Mfg. Co. v. Convertible Top Replacement Co., 365 U.S. 336 (1960).

While much of the discussion by the appellant of the prior art deals with "spatial filtering" and "frequency discrimination" and with "masking" those terms are not deemed pertinent to the question of validity since they were not present in the claims of the patent, in the patent disclosure or anywhere in the file history. Since, however, these terms have been discussed in the appellant's Brief they are discussed in another section of t Brief entitled Matters Presented Which Are Not Relevant. (page 73) It should be noted, however, in passing that what appellant considers "spatial filtering" is merely the detection of particles by a scanning member which produces signals which can distinguish the particles from other signal producing effects. (Tr. 2365) Stoate 517,229 accomplishes the same results and although neither Stoate or Calhoun describe in their patent the operation of their scanning members as accomplishing "spatial filtering", the fact remains that if Calhoun claims to have "spatial filtering" by utilization of his scanning means then Stoate likewise teaches "spatial filtering".

6. Summary

The appellee believes that the Trial Court was correct in finding that the claims in issue (Claims 7-15 and 17-24 inclusive) are not valid and do not meet the statutory requirement of unobviousness as presented in 35 U.S.C. 103. The Court correctly defined the relevant field of art as that field dealing with the detection of objects by electro-optical techniques. The contention by the appellant that no evidence was introduced which supported the Court's finding that the missile and star tracking technology were analogous to the field of bottle inspection was clearly an erroneous representation. The testimony of Ryde and Griest; the Patent Examiner's contentions during prosecution; the definitions of the classes and subclasses searched by the Patent Office; the titles and scope of the patents cited by the Patent Office; the occupational history of the inventors of the '640 patent; the notations in Calhoun's notebook dealing with the Falcon Missile System as applied to bottle inspection; and the correspondence between Mr. George Meyer (president of appellant) and patentee Calhoun all indicate that people with ordinary skill in the art recognize that the detection of any objects by electro-optical techniques were pertinent to bottle inspection as well as to other systems which presented the same basic scientific problem.

The prior art clearly showed each of the elements presented in the '640 patent and each of the elements performed in the '640 patent in the same manner as it performed in the

prior art with no unexpected or surprising result. The '640 patent being a combination patent was tested by the standards set forth in Graham vs. John Deere, supra; Great Atlantic and Pacific Tea Co. vs. Supermarket Equipment Corp., supra; Bentley vs. Sunset House Distributing Corp, supra; Santa Anita vs. Lugash, supra; and M.O.S. vs. John I. Haas, supra.

Whether the relevant art is considered very narrowly as the bottle inspection art or more realistically as the art pertaining the detection of objects by electro-optical techniques, the claims in question are obvious within the meaning of 35 U.S.C. 103 and as such are not entitled to be protected by the patent monopoly. A secondary test such as "commercial success" cannot in any way make patentable what is clearly unpatentable and such a test can only be applied when the question of patentability or validity is in question. Further, there must be some connection shown between the alleged "commercial success" and the features contended to be patentable. The present case does not present a factual basis whereby any importance can be attached to the so-called claim of "commercial success". The evidence indicates that other factors such as additional patents owned or licensed by appellant and appellant's marketing organization contributed to any "commercial success" enjoyed by appellant's machines.

The Trial Court's Findings of Fact and Conclusions of Law dealing with the questions of validity and relevant prior art are solidly supported by the record and should be given great

weight and not reversed unless clearly erroneous.

C. Matters Presented By Appellant Which Are Not Relevant

During the trial and throughout appellant's brief stress is laid upon certain terms, discussed hereinafter which terms are not mentioned in the patent and are, therefore, believed to be irrelevant to consideration of the question of infringement or validity. The test for determining infringement and validity is the claims in the patent.

Nelson v. Batson, 332 F.2d 132 (9th Circuit, 1963).

1. "Spatial Filtering"

One immediate difficulty with this term as with the others to be considered in this section of appellee's brief is to determine its meaning, especially in the context of the '640 patent. There is no reference to this term in the claims, specification or file history of the patent. Mr. Calhoun, in response to a question by Mr. Roston on rebuttal, does not himself give a meaningful definition, but does clearly state that he views it as something separate and apart from the electronics. (Tr. 2365) The Court in its findings of fact, never found that appellee's machines employ spatial filtering. To the extent that the Trial Court made reference to the term in its Findings of Fact, it merely shows the inherent fairness of the Court to make some determination relating to a term constantly discussed by appellant during the trial.

In this regard, it is interesting to note that the Trial Court said:

"The Defendant characterizes its alleged invention as a bottle inspection system which confines a centered optical system with a radial scan to provide spatial filtering. . ." (Emphasis added) (Finding of Fact No. 4, 1939)

If appellant seeks at this late date to urge upon the Court that a term not found in the patent should serve as a basis for finding a commonality between the claims of the patent and the appellee's machines or to distinguish its claims over those of the prior art, it must fail on both counts, as the Ninth Circuit Court of Appeal has often held that the patent is limited to the reading of the claims. Aerotec Industries v. Pacific Scientific , 381 F.2d 795 (9th Circuit, 1967); Del Francia v. Stanthony Corp., 278 F2d 745 (9th Circuit, 1960).

2. "Frequency Discrimination"

This is a term, which again, does not find itself in the specification, the claims or the file history of the patent, but is persistently advanced by the appellant to advance its view that this is the essence or gist of the invention which is somehow common to its claims and to appellee's machines (Appellant's Brief, pages 15 and 32). But it is not the gist of the invention which determines its scope but rather the combination of all of the elements in the claims.

Nelson vs. Batson, supra.

The Trial Court was so unimpressed with this theory advanced on behalf of appellant, that after hearing all of the evidence made no findings relating to such term either to the

claims of the patent as they related to the prior art or to appellee's machines. Further, the Court found specifically in finding 22 (re Claim 7 and others; R. 1948) that the SME machines are "not concerned with rendering a repetitive alternating current signal output at the photocell. Plaintiff's machines are concerned only with the leading edge of a single pulse. . ." (emphasis added). This clearly was in response to appellant's contention at trial of attempting to equate the alternating current detection element of its claims to the slope detection technique of appellee's machines under the banner of "frequency discrimination." Portions of the testimony for supporting the Court's findings in this regard, besides those elesewhere discussed in appellee's brief, may be found in Ryde's testimony at lines 2-5 of Tr. 1473; and at 2169 in Griest's testimony. Additionally at Tr. 541 and concluding at Tr. 603, there was much discussion concerning this term. The Trial Court well understood that the term as it applies to the claims and appellee's machines was a matter of definition or interpretation. See Tr. 602 line 15 through 16 of Tr. 603:

> "THE COURT: Let's go back.
> Do I correctly understand, Mr. Roston, that what you are looking for now is not what their circuitry is, because you are willing to accept his acknowledgement that it is like Exhibit AD, as explained by Mr. Husome's deposition, but that what you are looking for is some kind of language in the patent applications that will mouth the words "frequency discrimination" or something akin to that, so that you can find admission that they are actually doing frequency discrimination?

MR. ROSTON: That is part of it, your Honor.

THE COURT: Isn't that semantics? Because as I understand it, you people contend that the circuitry contained in AD is frequency discrimination.

MR. ROSTON: Right. The question is what does he contend.

THE COURT: That depends on the definition of frequency discrimination.

You might say that AD demonstrates eight ball, for whatever you contend eight ball means, and then if you want to look and see in their application whether or not they use the words 'eight ball', why, you think you find an admission, but you haven't unless you are talking about -- you are defining 'eight ball' in the same manner."

3. Other terms

Other terms in addition to the above two were also advanced by the patent owner at the trial and in its Brief to change the scope of the claims from their wording. Among such terms are "masking", and "edge effects". Neither of these terms are in any of the claims of the patent and should therefore be viewed as irrelevant to any issue in this case.

D. A Trial Court Need Not Determine Validity Before Making A Finding On Validity

The appellant (at pages 48 and 49 of appellant's brief) contends that the Trial Court erred in first finding no infringement by plaintiff-appellee before determining the question of validity. The appellant cites no cases or authorities to support such a contention. Further, it is not understood why the Trial Court must deal with the validity question before determining whether the alleged infringing device is within the scope of the claims in issue, regardless of whether the patent is valid or

In M.O.S. v. John I. Haas Co., supra, the Court considered the question of whether a Trial Court must consider the question of validity in an infringement suit. The Court considered the Supreme Court's statement in Sinclair and Carroll Co. v. Interchemical Corp., 325 U.S. 327, 330 (1945) concerning the tendency among lower courts to dispose of infringement suits on the ground of non-infringement without going into validity. The Supreme Court felt the "better practice" would be to inquire into both infringement and validity. The Appellate Court in M.O.S. then stated "at first, this Court as well as other Courts of Appeals, had some difficulty in deciding whether this was a rule or only an admonition. However, it is now settled that it is an admonition." (Emphasis added)

In the present suit, the Trial Court not only determined infringement but also inquired into and ruled on the question of validity. In the Trial Court's Conclusions of Law 12 (R, 1956) and 23 (R. 1958), it determined that all the claims in issue were invalid. Although the Court was not bound to inquire into validity it followed the "better practice", referred to in the M.O.S. and Sinclair cases, and found the claims in issue to be invalid. Whether the Trial Court determined the question of validity prior to or after finding no infringement is of no consequence.

V. SUMMARY AND CONCLUSION

Appellee has presented clear evidence in the record supporting the trial court's determination of non-infringement and invalidity.

It appears that concerning the fact finding of the trial court regarding non-infringement that the appellant has not attempted to compare the evidence presented on both sides of a given fact in dispute in order to show that the trial court's findings were clearly erroneous. Instead it appears that appellant is in effect saying that based upon the evidence favorable to it the Court ought to have rejected the contrary evidence and found differently. This we submit is not a proper basis for review of a trial court's determination of facts.

Similarly, on the issue of invalidity, ample support is given both in law and in fact to support this determination of the trial court.

To suggest as appellant does, in its Brief, that its onl witness on the merits regarding the issues of infringement and validity should be belived, as opposed to the testimony given by appellee's witnesses Husome, Stoate, Griest and Ryde (the latter three of whom clearly have no interest in the outcome) is to beggar a reply. Their backgrounds, all of which are in the transcript, speak for themselves. And certainly appellant's case was not proven directly or indirectly in whole or in part from the testimony of appellee's witnesses either on direct or cross-examination.

In addition, it is clear that this continued disagreement

as to facts grows out of a difference in the testimony of Mr. Calhoun from the contrary testimony of appellee's witnesses. On at least one critical issue, the non-equivalents of alternating current to slope detection of a pulse, one of the co-inventors of Mr. Calhoun disagrees with him and agrees with the position of appellee. (Williams' deposition page 129, lines 10-26; Tr. 71 and Tr. 810). Thus it is submitted that less weight should be given to the position of appellant as testified to by Calhoun where such is contradicted by other testimony which is not biased.

At another portion of Williams' deposition in evidence (Tr. 71), Williams testified (at page 91 of his deposition) that Industrial Dynamics never actually used a single spoke reticle. This is in direct opposition to Calhoun's testimony at Tr. 481-486.

Therefore, the judgment and order of the Court below on the issues of infringement and validity should be affirmed.

Dated: June 10, 1968

Respectfully submitted,

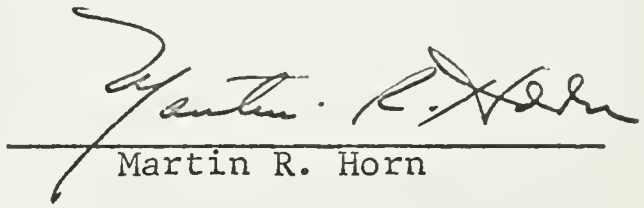
SPENSLEY, HORN AND JUBAS

By: Martin R. Horn

Martin R. Horn
Attorneys for Appellee

CERTIFICATE

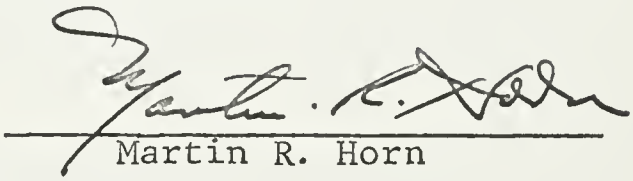
I certify that, in connection with the preparation of this Brief, I have examined Rules 18, 19 and 39 of the United States Court of Appeals for the Ninth Circuit, and that, in my opinion, the foregoing Brief is in full compliance with those rules.



Martin R. Horn

AFFIDAVIT OF SERVICE

The undersigned hereby certifies that three (3) copies of the within Brief were this 11th day of June, 1968, served upon Ellsworth R. Roston, Esq. of Smyth, Roston and Pavitt, Attorneys for Appellant, by enclosing the same in a postpaid wrapper addressed to said attorney at Suite 320, 4262 Wilshire Boulevard, Los Angeles 5, California, and depositing the same in the United States mail.



Martin R. Horn

APPENDIX A

FINDINGS OF FACT AND CONCLUSIONS OF LAW

FINDINGS OF FACT:

1. The Findings of Fact filed with the Court and signed on January 24, 1967, following trial on the issues of defendant's alleged misuse of the patent in suit are incorporated herein and made a part hereof by reference.

2. Claims 1 to 6, inclusive, and 16 of the patent in suit are not at issue. Claims 7 to 15, inclusive, and 17 to 24, inclusive, of U. S. patent No. 3,133,640 are at issue, with claims 7, 9, 18, 22, 23 and 24 designated by the defendant as representative of these claims.

3. The terminology of the patent in suit seems as understandable and reasonably precise as the respective contexts require. The descriptions contained in the patent in suit are sufficiently concise and clear to enable one skilled in the art to construct that which is taught by the patent.

4. The defendant characterizes its alleged invention as a bottle inspection system which combines a centered optical system with a radial scan to provide spatial filtering for the generation of signal components of a particular frequency or a range of frequencies representing small particles in the bottom of the bottle, electronic circuits for selecting the particular frequency or frequencies representing particles in the bottom of the bottle, and electronic circuits for detecting direct current at a particular level to reject opaque bottles and bottles with relatively large particles in the bottom of the bottles.

5. Reading the patent as a whole, in the light of the evidence presented relating to prosecution of the patent and the teachings of the prior art relating to bottle inspection and missile and star tracking, the Court finds that:

(a) With respect to the use of AC, the drawings and the specifications describe a device whose fundamental purpose is to detect a foreign particle by causing it to set up an alternating current signal of a particular frequency. The nature of the signal indicative of the presence of small particles in the bottle is characterized at column 2, lines 61-64 of the patent where it is stated that "As a result (of small particles of dirt in the bottle)

the output of the photocell will be an alternating current signal, the frequency of which basically is determined by the speed of rotation of the reticle times the number of spokes." The selection of this frequency, or reasonably discriminated band of frequencies (for rejection purposes), is accomplished by the LC tuned circuit, which is the heart of the frequency discrimination concept of the '640 patent. The '640 patent teaches the use of RC circuits as couplers, and not as differentiators. If '640 did use their circuits as differentiators, such would destroy the essence of the circuit by reducing the selectivity of the LC circuit. The detection of an alternating current signal, as contemplated by the patent, is predicated on the particular frequency of the signal. Counsel for the defendant states that the circuit disclosed in the patent is merely an embodiment of the invention, but the Court finds that it is the essence of the disclosure of the patent, insofar as the use of AC is concerned.

(b) The '640 patent discloses a centered optical system whose essential element is a rotatable light chopping disc centered on an axis of rotation that lies, at all times during inspection, within the periphery of the container.

(c) As taught by the patent, the term "axis of rotation" of the disc and "center of rotation" of the disc are synonymous. However, the use of reflective optics in plaintiff's device is equivalent to the use of refractive optics in the embodiment disclosed in the '640 patent.

(d) The '640 patent discloses a multi-spoked reticle having more than one translucent area and more than one opaque area alternately disposed with the translucent areas, each of the areas extending radially from the center of the disc. The '640 patent does not include a disc having a single reflective line with the remainder of the surface opaque.

6. Where appearing in the patent in suit, such terms as "AC", "alternating current", "alternating current signal", and "substantially alternating current" or the like, mean an alternating current signal which has a substantially constant and repetitive pattern with a substantially predetermined time relationship between successive portions of the signal. Although the plaintiff's machine produces an alternating current signal, it is only concerned with the initial slope of the first pulse thereof, and is not concerned with matters of frequency or repetitive pattern.

7. All of the claims of the patent in suit which employ terms such as "reticle", "disc", "scanning means", "annular member" or the like mean a reticle including at least two radial opaque areas and two transparent areas.

8. Neither the specification nor the drawing contained in the '640 patent discloses anything different from the production of an AC signal having a particular frequency indicative of the presence of small particles in the container; nor do the specification or drawing disclose anything different from a multi-spoked reticle having more than one transparent segment and more than one opaque segment extending radially from the center of the reticle.

9. The nature of the art we are here concerned with is the detection of foreign objects in a field of view by electro-optical techniques, rather than being limited to the bottle inspection field. (This finding also appears as conclusion of law No. 5.)

10. Electro-optical systems for the detection of objects in the sky, detection of material moving on a conveyor, detection of the presence of objects moving on the ground, and detection of objects in a container, all are systems which reside in an analogous art, and such systems employ similar elements in a similar relationship for a similar purpose. Further, such systems are related by the end object of seeking to detect an object having distinct light or dark characteristics in a background of different light or dark characteristics.

11. The Court finds that each of the elements of the patent in suit as hereinabove discussed was well known in the prior art:

(a) A centered optical system, including a disc providing a radial scan, is disclosed in the British patent No. 517,229 issued to Stoate January 24, 1940, and United States Patent No. 3,034,405 filed October 13, 1953, and issued to Biberman, et al., May 15, 1962.

(b) The use of DC to detect large objects in a container is disclosed by Stoate '229; United States patent No. 2,265,037 issued to Gulliksen December 2, 1941; United States patent No. 2,439,490 issued to Schell April 13, 1948.

(c) The use of AC to detect foreign objects is disclosed by United States patents to Fitz-Gerald No. 2,016,036; Biberman No. 3,034,405; Schell No. 2,439,490; and Weathers No. 2,427,319. The art of attenuating signal components having undesirable frequencies in an AC signal to emphasize other signal components having a particular

frequency or frequencies in the AC signal is well known. The art of emphasizing the signal components having the particular frequency or frequencies in the AC signal is also well known.

(d) The Stoate '229 patent discloses a DC system, but does not disclose or contemplate the concept of spatial filtering for the generation of signal components of different frequencies and the selection by electronic techniques of the frequency or frequencies representing small particles in the bottom of the bottle.

(e) The Biberman '405 patent discloses a missile or star tracking system but does not disclose a bottle inspection system. The Biberman '405 patent is the only reference specified in paragraphs 11(a), 11(b) and 11(c) of the Findings of Fact that discloses a centered optical system with a radial scan for providing spatial filtering.

(f) No single reference cited by plaintiff discloses a bottle inspection system employing techniques of spatial filtering or the combination of spatial filtering and electronic frequency selection as defined in paragraph 4 of these Findings of Fact.

12. (a) The '640 patent discloses the first system for detecting small particles in the bottom of a bottle while scanning the bottom of the bottle, including the edge of the bottle, without masking the edge of the bottle.

(b) The need for a satisfactory machine for inspecting empty bottles for foreign particles existed for a considerable period of time before the invention of the embodiment of the '640 patent.

(c) The invention of the '640 patent has enjoyed considerable commercial success.

(d) For all practical purposes, the only machines now being sold in the United States for inspecting empty bottles for foreign particles are those being manufactured by the defendant, the plaintiff, and the Barry-Wehmiller Co. The machine being manufactured by Barry-Wehmiller Co. was developed by Wyman, one of the inventors of the '640 patent, and Husome, president of plaintiff and the person who developed plaintiff's machines.

13. Each of the elements in the patent in suit is employed in substantially the same way, and functions in substantially the same manner, as its counterpart in the prior art. However, all of the elements in the patent in suit do not have counterparts in the field of bottle inspection.

14. Of the above-mentioned prior art references, only Fitz-Gerald '036 was before the United States Patent Examiner. However, the Patent Office cited references disclosing centered optical systems with radial scans in the field of star tracking and missile tracking systems, and the defendant, through its attorneys, called other similar references to the attention of the Patent Office. Such references further disclosed the concept of spatial filtering in the star tracking and missile tracking field. The '640 patent was granted over such references.

15. Upon review of the evidence adduced, the Court finds that the following patents are part of the relevant prior art:

(a) Stoate '229 teaches the use of a centered optical system with a rotatable scanning member having a single radial slit. The scanning member is disposed above the bottle being inspected, with its axis of rotation coincident with the common axis of a light source, bottle and a photocell. Defendant knew, through other attorneys than those prosecuting the applications which resulted in the grant of the '640 patent, of the Stoate '229 patent prior to its argument before the Patent Office to the effect that the centered optical system was an important and novel part of the invention disclosed and claimed by defendant and that defendant was the first to include a centered optical system for the bottle inspection machine disclosed and claimed by defendant.

However, the defendant's attorneys were not convinced at that time that such references actually disclosed a centered optical system, and the defendant did not practice any fraud by any failure on its part to call the Stoate '229 patent to the attention of the Patent Office.

(b) Biberman '405 discloses, in a star tracking or missile tracking system, a centered optical system including a reticle with alternately disposed opaque and translucent areas for the detection of a foreign object in a field of view. Biberman '405 further suggests the use of AC circuitry tuned to a particular frequency to detect a foreign object in a field.

(c) Schell '490 and Weathers '319 teach the combination of an AC signal for the detection of small foreign particles in a field of view, and a threshold or DC level signal for the detection of opaque bottles and large particles in bottles. Further, the Weathers patent discloses the detection of foreign particles in the field of view by use of a tuned circuit.

The defendant's attorneys were aware of the teachings of the prior art mentioned above in this paragraph at the time they argued before the Patent Office in support of their application for the '640 patent, and they did not call such prior art to the attention of the Patent Office. However, the defendant's attorneys did not intentionally withhold anything from the United States Patent Office that they concluded was relevant.

16. The patent in suit is a combination patent.

17. The detection of objects in a field of view in the star tracking or missile tracking field occurs in a relatively homogeneous background. The detection of a small foreign particle in the bottom of a bottle occurs in a substantially non-homogeneous background, especially since the signal components produced by scanning the edges of the bottle have a much greater intensity than the signal components produced by scanning small particles in the bottom of the bottles. Nonetheless, the Court finds that both come within the art here concerned as defined in paragraph 9 hereof.

18. Some of the problems presumably encountered and solved in the development of the defendant's alleged invention were previously recognized and solved by others in the field of missile or star tracking prior to the filing of the '640 patent application by the inventors. Other such problems were previously recognized and solved in the field of bottle inspection prior to the filing of the patent application by the inventors. Some of the problems specific to the bottle inspection field, including the effects of the edge of the bottle, was neither recognized nor solved by others prior to the filing by the inventors of the patent application which matured into the '640 patent.

19. The Court finds that both Williams and Calhoun, the named co-inventors of the patent in suit, possessed at least ordinary skill in the guided missile and missile tracking field, wherein the use of spoked recticle-AC systems for the electro-optical detection of objects against a background was well known prior to filing the patent application for the patent in suit. After organizing Industrial Dynamics, the inventors devoted a number of months in unsuccessful attempts to develop an operative system for detecting

particles in empty bottles before deciding that a scanning type of system was best suited for bottle inspection. Once it was decided that a centered optical system with a radial scan was best suited for bottle inspection, Industrial Dynamics Corporation required only approximately one month to design and construct its first prototype of the machine described in the patent. While the inventors appeared to have had some developmental problems, they were mostly engineering problems, i.e., problems related to the application of the inventor's mechanical and electronic skills.

20. The inventors constructed a number of different embodiments before filing in the Patent Office the patent application which formed the basis of the '640 patent. These embodiments were operative. They included systems having a reticle with a single translucent area and with a single opaque area and with the opaque area considerably larger than the translucent area, the reticle being included to provide spatial filtering when the reticle rotated. These embodiments further included RC circuits to detect the signal components representing small particles in the bottom of the bottles by selecting the range of frequencies representing such particles from other frequencies after the generation of such different frequencies by spatial filtering.

21. What the named inventors did would not be surprising or unobvious to a person skilled in the art.

22. Plaintiff's machines (the allegedly infringing 303 and Slimlight) seek the same end result of detecting foreign particles in a container as does the machine described in defendant's patent. However, the means employed by the SME devices to reach this end result are dissimilar from those taught by the patent in suit. The enumerated respects in which the Court finds them dissimilar are set forth in rather telegraphic reference to the wording of the following claims:

Claim 7. (a) The different areas of the bottle scanned by the SME machines do not include the center and progressive portions of the periphery of the bottle. In the SME machines the scanning member is rotating at a high rate of speed while the bottle is in continuous motion across the inspection zone. The mirrored slit of the SME scanning member does not extend beyond the center of the member. Therefore, before the center of the bottle reaches the axis of rotation, the scan of the trailing one-half of the sweep does not include the center of the bottle; and the

instant the center of the bottle goes beyond the axis of rotation, the scan of the lead one-half does not include the center of the bottle.

(b) The detection circuitry of the SME machines is not concerned with rendering a repetitive alternating current signal output at the photocell. Plaintiff's machines are concerned only with the leading edge of a single pulse of electrical energy indicative of the presence of a foreign particle in the container. The fact that the photocell does set up a repetitive alternating current signal is irrelevant to the operation of the SME machine.

(c) The rejection of a bottle by the SME machine is not dependent upon an alternating signal of a hoped for particular frequency or a discriminated band of frequencies as taught by the patent in suit. In the SME machines, rejection is primarily dependent upon the rate of change of amplitude of a single pulse of electrical energy indicative of the presence of a foreign particle. Such rejection derivative is achieved through the use of an RC differentiating network. The patent in suit teaches rejection selection through the use of an LC tuned circuit responsive to a particular frequency. While plaintiff's machines are concerned only with signals in the 200-5000 c.p.s. range, this is not comparable to the '640 patent wherein a specific frequency, dependent on the speed of rotation of the scanning disc times the number of disc spokes, is sought to be selected.

Claim 9. (a) The progressive segments of scan of the scanning member of the SME machines do not, at all times during the complete inspection period, include the center of the bottom of the bottle and progressive portions of the periphery, as discussed with respect to claim 7.

(b) In the SME machines, the center (axis) of rotation of the rotatable means is not

actually disposed within the bottom of the container. However, while the actual center (axis) of rotation lies outside of the periphery of the bottom of the container, the optical axis, bent by the mirrored surface of the rotating member, does lie within the periphery of the bottom of the container. The offset of the axis of rotation of the SME rotating member is effected to provide a means for scanning the neck of the bottle, a result that is not achieved or taught by defendant's disclosure. This offsetting is done for a purpose that is unrelated to a simple attempt to avoid the charge of copying the claim, and the doctrine of equivalents for this reason is found not to apply.

(c) As stated above with respect to claim 7, the SME machines are not concerned with indicating the presence of foreign particles by means of alternating signals in a relevant sense as taught by the patent.

Claim 18. (a) In the SME machines, the scanning area is not "substantially greater" than the size of the particle sought to be detected, in the sense that the quoted words are used in the '640 patent.

(b) Because of the motion of bottle through the inspection zone, the SME scanning areas do not include, at each instant, the center and a portion of the periphery of the container. This is discussed above with respect to claim 7.

(c) The circuitry of the SME machines does not undertake to detect particular alternating components in the photocell output signal in the manner taught by the patent in suit. In a detection sense, the machine taught by the patent in suit is interested in alternating signals of a particular frequency. As indicated hereinabove, with respect to claim 7, the SME machines are interested only in the slope or rate of change of the magnitude of a single pulse.

(d) The SME machines are not concerned with particular levels, or magnitudes, of an AC Signal produced by the photocell as taught by the patent in suit. Plaintiff's machines are responsive only to the rate of change of magnitude of a pulse and not the ultimate magnitude of the pulse.

Claim 20. (a) As set forth in the findings relating to claim 9, the center (axis) of rotation of the SME scanning member is not within the periphery of the container.

(b) The progressive segments of the areas of the bottle scanned by the SME machines do not include the center and portions of the periphery of the bottle. This was discussed above with respect to claim 7.

(c) The SME machines are not concerned with producing an alternating current signal at a particular frequency and magnitude related to the size of the particle. The rejection portion of the circuitry of the patent in suit will reject a bottle only if the input thereto is an AC signal having a particular frequency, or selected range of frequencies, indicating the presence of a foreign particle. In the SME machines, the detection circuitry will accept signals over a broad range of frequencies but reject a bottle only if a single pulse received indicates a particular rate of change of magnitude.

Claim 21. (a) For the reasons indicative hereinabove with reference to claim 9, the center (axis) of rotation of the SME scanning member is not within the periphery of the bottle to be inspected.

(b) As stated hereinabove with respect to claim 18, in comparison with the teachings of the '640 patent, the SME area of scan is not substantially larger than the cross-sectional area of a dirt particle sought to be detected.

(c) The area of scan of the SME machines at any instant does not include the center of the bottle to be inspected.

Claim 22: (a) For reasons indicated hereinabove with respect to claim 7, the plaintiff's machines are not concerned about rendering an alternating current signal output, nor is the rejection of a bottle based upon an alternating signal in a relevant sense as taught by the patent in suit.

Claim 23: (a) For the reasons indicated hereinabove with respect to claim 7, the plaintiff's machines are not concerned with rendering an alternating current signal output in a relevant sense as taught by the patent in suit.

(b) The SME machines do not use an amplifier mean tuned to a specific frequency range. The fact that the plaintiff's machines set up frequencies ranging from 200 to 5000 cycles per second, does not constitute focusing on a "specific frequency range" in the sense taught by claim 23. Consequently, plaintiff's machines are not constructed to reject a bottle on the basis of an alternating current signal having a frequency within a specific range.

Claim 24: (a) The scanning member of the SME machines is not on a center located within the periphery of the bottle. This is discussed with reference to claim 9.

(b) As opposed to the teachings of the '640 patent, the SME scanning member does not have alternate radial opaque and translucent areas. Reading the patent as a whole, the term "areas" means more than one with respect to both opaque and translucent respectively. Referring to the SME scanning member it cannot be said that the opaque area extends in a radial direction out from the center in the same or similar sense as the opaque areas of the scanning disc disclosed by the patent in suit.

23. Based upon statement of defendant's counsel that the defendant is willing to predicate its case upon the claims hereinabove discussed, the Court has limited its detailed discussion to those claims. However, the evidence establishes, and the Court finds, that the remaining claims

at issue, namely 8, 10-15, inclusive, 17, 19 and 20 are not infringed by the SME machines.

CONCLUSIONS OF LAW

1. The Findings of Fact and Conclusions of Law filed with this Court and signed January 24, 1967, following trial on the issues of the defendant's alleged misuse of the patent in suit are incorporated herein and made a part hereof by reference.

2. This Court has retained jurisdiction of the parties and of the causes of action set out in the Complaint and Counterclaim.

3. All of the remainder of the claims are properly at issue, and the defendant has chosen to predicate its case upon claims 7, 9, 18, 22, 23 and 24.

4. 35 U.S.C.A. Section 282 provides in part, "A patent shall be presumed valid. The burden of establishing invalidity of a patent shall rest on a party asserting it." Plaintiff herein is charged with that burden.

5. Whether arts are analogous depends upon the similarity of their elements and purpose. If elements and purpose in one art are so related and similar to those in another art that the relationship would appeal to the mind of a person having mechanical skill and knowledge of the purposes of the other, then the arts may be said to be analogous. The nature of the art or field of interest we are here concerned with is the detection of objects in a field of view by electro-optical techniques, rather than being limited to the bottle inspection field. (See also Finding No. 9.)

6. Electro-optical systems for the detection of objects in the sky, detection of material moving on a conveyor, detection of the presence of objects moving on the ground, and detection of objects in a container, all are systems which reside in an analogous art, and such systems employ similar elements in a similar relationship for a similar purpose. Further, such systems are related by the end object of seeking to detect an object having distinct light or dark characteristics in a background of different light or dark characteristics. (See also Finding No. 10.)

7. Both parties have properly characterized the patent in suit as a combination patent. In construing the patent, it must be read as a whole and the claims interpreted in the light of the specifications.

8. The evidence establishes and the Court concludes that each element of the patent in suit is anticipated in prior art references as such prior art is defined in Conclusions 5 and 6 hereof. No single element of the patent in suit constitutes invention. Scrutiny of combination claims should be even more detailed when, as with the patent in suit, the old elements have been previously employed in a similar relationship for a similar purpose, or when the elements perform the same function in combination as out of it.

9. Even if all the claims here in issue disclosed the combination of all of the elements of the alleged invention, each of such claims would be invalid for lack of invention over the prior art here concerned. "A patent for a combination which only unites old elements with no change in their respective functions,. . .obviously withdraws what already is known into the field of its monopoly and diminishes the resources available to skillful men."

Farr Co. v. American Air Filter Co., 318 F.2d 500, 503 (9th Cir. 1963).

10. The validity of the '640 patent depends on the disclosure of a combination that "produces in some way or manner a surprising or unusual result which would not have been expected by a person having ordinary skill in the art."

Canadian Ingersoll-Rand Company v. Peterson Products of San Mateo, 223 F. Supp. 803, 808 (N.D. Calif. 1963).

11. No claims in the patent are so broad as to purport to include each of the elements of the combination that the defendant contends for its patent, as set forth in Finding of Fact No. 4.

12. All of claims 7 to 15, inclusive, and 17 to 24, inclusive, are invalid as being obvious under 35 U.S.C.A. Section 103.

13. If the missile and star tracking field cannot be properly considered with the bottle inspection field as a single art of detecting objects in a field of view by electro-optical techniques, the system disclosed and claimed in the '640 patent constitutes an invention over the prior art relating to bottle inspection, and the patent is valid.

14. On each of plaintiff's allegations, the Court concludes that the defendant has not practiced a fraud on the United States Patent Office in its prosecution of the application for the patent in suit.

15. Plaintiff's contention that the claims of the patent in suit must fail because they are fatally ambiguous, indistinct and indefinite is rejected. Further, the Court concludes that the description contained in the patent in suit is sufficiently clear and concise to enable one skilled in the art to construct the disclosure thereof.

16. The Court concludes that the patent in suit does not fail for improper joinder of inventors. Plaintiff has failed to bring forth sufficient evidence tending to show that Wyman was not a proper co-inventor on said patent.

17. The previously stated conclusions of the Court with respect to the validity of the patent in suit preclude the necessity for the Court to rule upon plaintiff's contentions that claims 7 to 15, inclusive, and 17 to 24, inclusive, are invalid because they were filed more than one year after public use began.

18. The burden of proof is upon the one asserting infringement to establish the infringement of a patent by a proponderance of the evidence.

19. Where the elements of the patent are found in various prior patents in the same art field of interest, the patent will be construed strictly according to its terms. The terms in a patent must be strictly construed against the patentee in determining infringement. Claims must be construed not only in the light of the specification and drawings, but also with reference to the file history; claims must always be explained by and read in conjunction with, the specification and in the light of definitions and admissions made by the applicant in Patent Office proceedings.

20. In order for a patent to be infringed, each and every element of at least one of the claims of the patent must find its counterpart in the accused device, a situation that is not present here as to any claim.

21. In order to constitute equivalency of devices, it must be established that the same or similar functions are performed in substantially the same way or manner or by the same, or substantially the same, principle or mode of operation. Although the device disclosed in the '640 patent and the SME devices are similar from the standpoint of result (or function) (save the neck detection function of the SME machines, a capability not achieved by defendant's

device), they are dissimilar as to the means of achieving these results (or performing these functions), and therefore are not equivalent.

22. An invalid patent may not be infringed, and the Court accordingly concludes that none of the claims here concerned are infringed by the plaintiff's machines. Moreover, even if the patent in suit were in any respect to be declared valid, the Court concludes that it is not infringed, in light of Conclusion No. 20 hereof and Finding of Fact No. 22.

23. Plaintiff is entitled to a declaratory judgment on its Complaint that claims 7 to 15, inclusive, and 17 to 24, inclusive, of the patent in suit are invalid and not infringed.

24. Plaintiff is further entitled to a judgment dismissing defendant's Counterclaim and awarding costs to plaintiff for the portion of the litigation relating to patent validity and infringement. Each party will bear its own atttorney's fees.

APPENDIX B

DESCRIPTION OF THE MOST PERTINENT ART

Stoate British Patent 517,229 (Ex. 44)

Stoate teaches a scanning system with a centered optical scan. Stoate detects particles in an empty transparent vessel (e.g., bottle) by utilizing a screen or reticle, a light source and a light sensitive device (e.g., a photocell) which are aligned along the axis of the vessel. The screen or reticle used has a slit or aperture. Relative movement is then provided between the vessel and the slit so as to cause the latter to scan the entire surface to be examined. Stoate teachs inspecting of a stationary vessel by means of a rotating scanning member. Light is directed from the light source upwardly through the slit and the vessel to the light sensitive device. When a particle interrupts the light, the average amount of light reaching the light sensitive device decreases to provide an indication of the particle.

Stoate U. S. Patent 2,100,227 (Ex. 45)

Stoate discloses an apparatus for detecting foreign particles on the bottom of transparent vessels. The apparatus utilizes a support having a scanning slit therein, a light sensitive device (e.g., a photocell) disposed beneath the scanning slit and a source of light disposed so that the light is directed through the bottom of the vessel onto the slit. The vessel is rotated about its longitudinal axis and when

particles are present the amount of light reaching the light sensitive device varies to give a signal. The signal indicates when particles have caused the light reaching the light sensitive device to be reduced below a predetermined level thereby initiating an ejecting mechanism to remove the vessel containing the particles.

R.C.A. Machine (Schell and Weathers U. S. Patents 2,439,490 and 2,192,568) (Exs. 46 and 47)

The R.C.A. machine deals with a system for inspecting full bottles for particles. A turntable imparts motion to the bottles causing them to spin. When the turntable stops the liquid contents continue to swirl and inspection of the contents is effected by electro-optical means. An optical system is used comprising a beam of light and two banks of photocells. The light beam passes through the fluid contents of the bottle and is distributed between the two banks equally. In the absence of any particle, the output of one bank of photocells is balanced against the output of the other bank. When a particle is present, an unbalance is produced as the particle crosses the beam of light causing a signal to be produced which is dependent on the size of the particle or particles. The signal produced by the photoelectric means is fed into an A.C. amplifier tuned to a fundamental or peak frequency corresponding to the speed of rotation of the contents. A D.C. amplifier is controlled by the A.C. amplifier to actuate a relay circuit above a predetermined signal level.

Biberman U. S. Patent 3,034,405 (Ex. 49)

Biberman teaches a centered multislit scanning system (e.g., alternate opaque and transparent sectors on a disc) for detecting an object from a background. The scanner emphasizes the object signal and substantially suppresses the background signal. The system disclosed utilizes an object signal generator having an optical means for focusing electromagnetic radiation on a rotatable disc-like scanner driven by a motor connected to the scanner. The disc-like scanner contains a plurality of slits comprising opaque and transparent sectors. The variations caused by the objects on the background provide variations in the electromagnetic radiation which are converted into an alternating current by a photosensitive device.

Jones U. S. Patent 3,134,022 (Ex. 112)

Jones teaches a signal detector for use with a radiation sensor. Jones provides a signal detecting circuit capable of selecting one frequency (the desired signal) in the presence of other unwanted signals. Also, Jones teaches that it is well known that an object may be viewed by a suitable photosensitive detector device to give an electrical output. A chopping action is performed which comprises the alternate viewing and obscuring a field of view in alternate sectors. The chopping action does not effect the background radiation which is constant, but does effect the object radiation thereby producing an alternating

current (A.C.) signal. The resulting output of the photosensitive detector device, therefore, has two components, one is A.C. representing the object radiation and the other is a mean level (direct current or D.C.) representing the background radiation.

Gulliksen U. S. Patent 2,265,037 (Ex. 120)

Gulliksen teaches a system for inspecting bottles in which a lens is rotated and a secondary lateral movement is effected to produce a spiral scan. The lens is positioned between a light source and a bottle so that the entire bottom of the bottle is scanned as the lens follows its spiral path. A phototube is positioned above the bottle to receive the light passing through the bottle. An electrical pulse is provided at the photocell whenever a particle interrupts the light passing through the bottle. This impulse indicates the presence of a particle or particles and is sent to an impulse amplifier to operate a suitable alarm device.

Stoate et al U.S. Patent 2,636,602 (Ex. 43A)

This patent is concerned with a system for detecting foreign bodies on the bottom of transparent vessels (e.g., glass bottles). The system utilizes a scanning member, a source of light and a photoelectric device (e.g., a photocell) activated by light of a predetermined level. The photoelectric device is arranged to control a thermionic amplifier which

produces an electrical signal when the photoelectric device is darkened by a shadow in the scanning field. The amplifier comprises coupling circuits utilizing a blocking capacitor or the amplifier is otherwise arranged so that it will correspond to a rapid change of illumination of the photoelectric device such as is caused by the passage of a scanning aperture across a shadow in the scanning field. However, the circuitry will not be affected by variations in the mean intensity of illumination due to a variation in the general illumination of the scanning field. Thus, the apparatus is insensitive to background variations such as color, lettering, etc.

FOR A FURTHER DEVELOPMENT OF THE PERTINENT PRIOR ART THE COURT'S ATTENTION IS DIRECTED TO EXHIBITS 104, 105 AND 111.

APPENDIX C

I. PLAINTIFF'S EXHIBITS

Plaintiff's Exhibits	For Identification	In Evidence
1	119	123
2	119	123
3	129	130
4	185	190
5	195	197
6	258	260
7	274	274
8	276	276
9	278	278
10	292	292
11	292	292
12	297	297
13	297	297
14	316	317
15	339	341
16	339	341
17	347	349
18	350	351
19	350	351
20	350	351
21	369	370
22	389	390

Plaintiff's Exhibits	For Identification	In Evidence
23	389	390
24	393	394
25	393	394
26	398	398
27	399	399
28	401	401
29	420	421
30	423	425
31	423	425
32	426	427
33	426	427
34	506	508
35	545	546
36	545	547
37	545	563
38	545	563
39	568	
40	687	688
41	690	691
42	693	693
43	693	694
44	694	696
45	701	701
46	701	704
47	704	710

Plaintiff's Exhibits	For Identification	In Evidence
48	711	711
49	712	733
50	742	
51	746	750
52	823	1612
53		861
54		926
55	947	948
56	947	948
57	947	948
58	949	953
59	954	955
60	972	1089
61	1058	1561
62	1068	
63	1084	1084
64	1086	1090
65	1094	1466
66	1106	1106
67	1142	1142
68	1161	1162
69	1166	1166
70	1375	1397
71	1414	1612
72	1415	

Plaintiff's Exhibits	For Identification	In Evidence
73	1416	1491
74	1439, 1438	1438
75	1441	1455
76	1441	1610
77	1449	1452
78	1463	1465
79	1477	1637
80	1490	1491
81	1513	1513
82	1550	1550
83	1570	1574
84	1575	1575
85	1591	1591
86	1600	1609
87	1616	1632
88	1633	1633
89	1636	1793
90	1642	1642
91	1648	1648
92	1655	1660
93	1660	1666
94	1666	1673
95	1667	1673
96	1673	1677
97	1679	1681

Plaintiff's Exhibits	For Identification	In Evidence
98	1681	1684
99	1695	1695
100	1926	1926
101	1931	1949
102	1932	1971
103	1932	1971
104	1949	2159
105	1951	2178
106	1971	1984
107	1995	2193
108		2010
109		2085
110		2112
111	2131	2151
112	2152	2153
113	2152	2153
114	2152	2153
115	2152	2153
116		2150
117	2177	2178
118	2177	2178
119	2179	2187
120		2193
121	2195	2201
122	2201	2203

II. DEFENDANT'S EXHIBITS

Defendant's Exhibits	For Identification	In Evidence
A	146	147
B	443	447
C	473	478
D	492	493
E	102	108
F	108	108
G	110	110
H	118	118
I	124	124
J	154	154
K	167	167
L	174	174
M	181	181
N	186	186
O	221	221
P	229	231
Q	232	242
R	242	242
S	243	245
T	245	247
U	249	251
V	253	253
W	254	254

Defendant's Exhibits	For Identification	In Evidence
X	258	259
Y	260	264
Z	269	295
AA	298	529
AB		337
AC	359	360
AD	360	360
AE	363	668
AF	409	429
AG	472	480
AH	481	486
AI	486	490
AJ	490	492
AK	402	493
AL	494	494
AM	517	523
AN	524	524, 2354
AO	564	565
AP	610	618
AQ	618	2353
AR	622	622
AS	623	623
AT	629	629
AU	630	631

Defendant's Exhibits	For Identification	In Evidence
X	258	259
Y	260	264
Z	269	295
AA	298	529
AB		337
AC	359	360
AD	360	360
AE	363	668
AF	409	429
AG	472	480
AH	481	486
AI	486	490
AJ	490	492
AK	402	493
AL	494	494
AM	517	523
AN	524	524, 2354
AO	564	565
AP	610	618
AQ	618	2353
AR	622	622
AS	623	623
AT	629	629
AU	630	631

Defendant's Exhibits	For Identification	In Evidence
BZ	1702	1703
CA	1703	1704
CB	1704	1706
CC	1708	1708
CD	1709	1709
CE	1710	1711
CF	1712	1758
CG	1712	1758
CH	1718	1758
CI	1722	1758
CJ	1750	1758
CK	1758	1760
CL	1760	1777
CM	1809	1820
CN	1837	1848
CO	1847	1859
CP	1859	
CQ	1860	2353
CR	1879	
CS	2055	2356
CT	2066	2080
CU	2066	2080
CV	2077	
CW	2082	2083

Defendant's Exhibits	For Identification	In Evidence
CX	2226	2239
CY	2239	2255
CZ	2255	2273
DA	2291	2294
DB	2293	2356
DC	2331	2331
DD	2361	
DE	2397	